MARCH • 1958

FIREMEN

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Church Fire at Lindenwold, New Jersey — *see page 7*

ONAL FIRE
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New Classification for PORTABLE FIRE EXTINGUISHERS › ›
. . . see page 8

FOAMING RUNWAYS FOR CRASH PROTECTION › › ›
. . . see page 14

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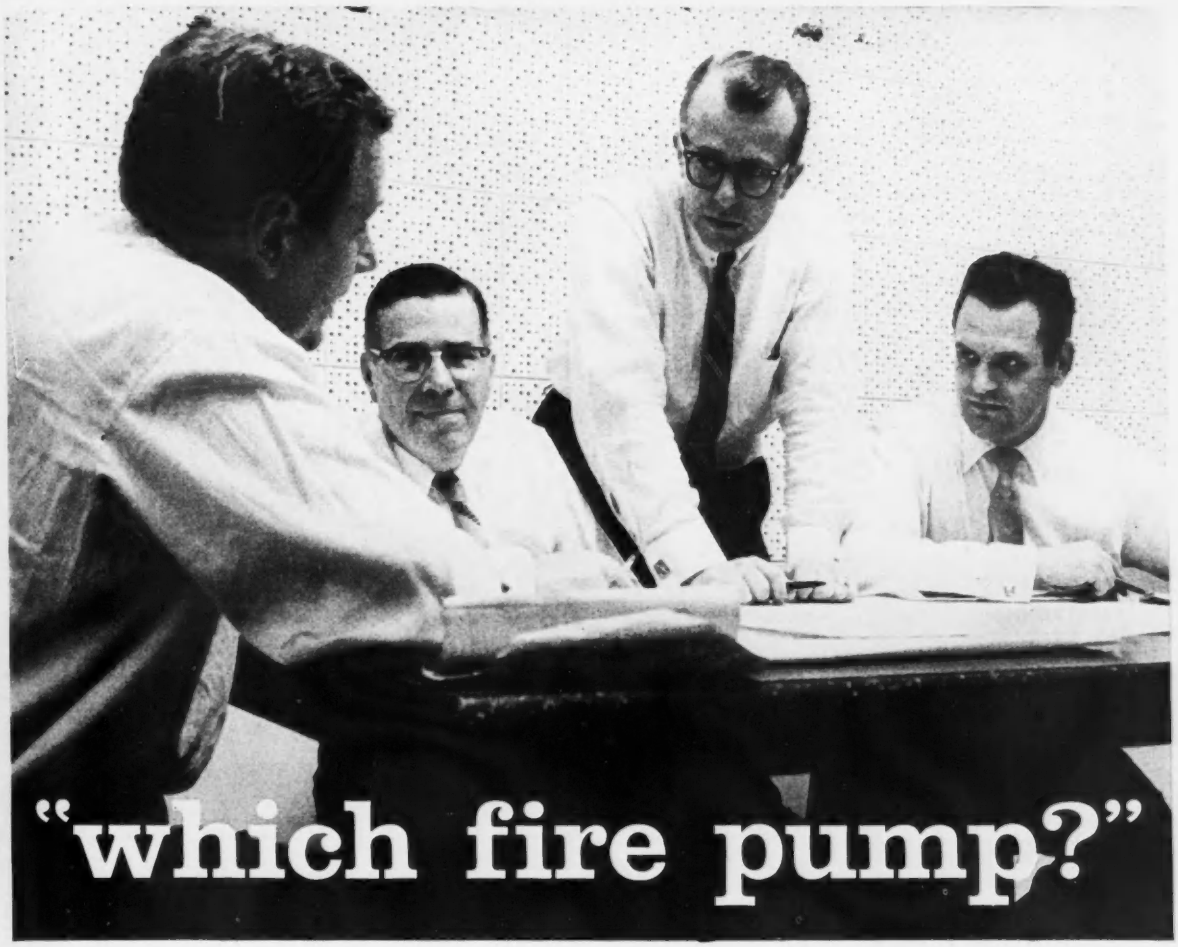

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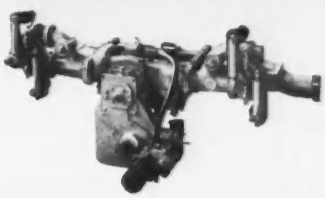

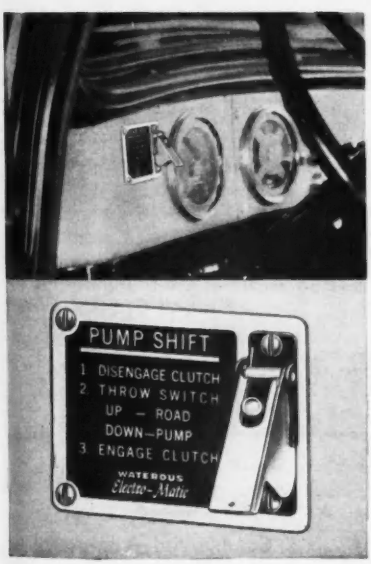

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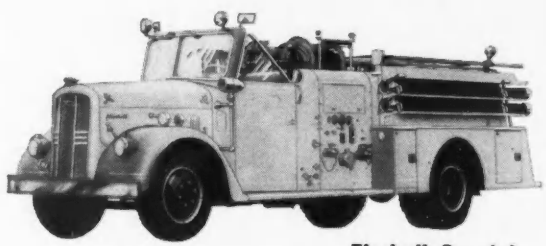

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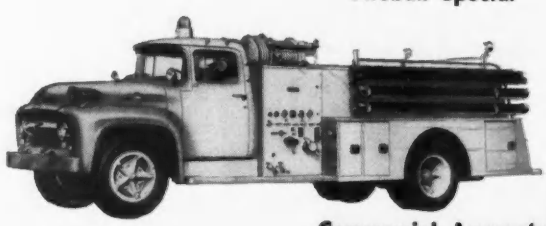

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is available only through membership in the National Fire Protection Association at $2.00 per yearly subscription, in addition to the annual $15.00 membership dues. The Association has a special membership plan that has wide appeal among public paid, call and volunteer fire departments. Of the 17,000-plus NFPA members, 2,403 are fire departments, and 24,517 fire fighters are subscribing to FIREMEN magazine.

The NFPA Staff includes engineers and other specialists (*see below*) who work with various technical committees of the Association. Information concerning NFPA, its membership, its numerous technical fire protection publications and activities will be furnished promptly on request to the Executive Office.

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FIREMEN

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This month's cover picture shows fire destroying St. Lawrence Catholic Church in Lindenwold, New Jersey, on February 9. It was started accidentally by a 15-year-old boy who dropped a candle in the altar boys' room, and, by the time he could reach a telephone to send an alarm, the fire was beyond control. Despite mutual aid response of six fire departments, the church was destroyed with loss estimated at about $200,000.

The forthcoming April, 1958, NFPA *Quarterly* will feature the annual summary and analyses of large loss fires — those exceeding $250,000. Included in the study is the reporting of 15 large loss fires of 1957 which involved churches. In the preceding year, 1956, there were 14 large loss church fires, but the dollar loss was more than 3 million dollars higher than in 1957 fires.

These studies, and NFPA Occupancy Fire Record FR 56–4, bring out the fact that the outstanding feature of serious church fires is that they are not discovered promptly. This, coupled with lack of automatic fire protection, such as sprinklers or automatic fire detection systems, means that responding fire departments are faced with overwhelming fire control problems.

Because so many churches have concealed, nonfirestopped spaces, and lack fire divisions in attic spaces, they demand special preplanning of fire attack by the fire departments concerned. Such preplanning should include an evaluation of the best means of controlling fire in the hidden wall and ceiling spaces, the proper placement and utilization of heavy stream equipment, efficient use of water supply, the best protection of exposed property and the teamwork of mutual aid response. Even with this preparation, a delayed discovery or alarm can lead to conditions similar to those shown on this month's cover, and the responding fire department will be tested to its maximum tactical and operational ability. Church fires can be minimized through proper fire protection equipment and a sound educational program of fire prevention. Fire chiefs who want to talk the matter over with church authorities will find much helpful, factual information in Occupancy Fire Record FR 56–4 and in the forthcoming NFPA study of large loss fires. (*Cover picture — Wide World Photo.*)

●

A practical investment for any community is to send its fire chief, fire marshal and other fire officers to an annual meeting of the National Fire Protection Association. Since uniformed firemen are admitted to the sessions without paying the registration fee, the only costs involved are transportation and board expenses. These fire officers then have the chance to hear top authorities discuss timely and significant matters of fire control, fire protection and fire prevention. They will meet other chiefs and fire marshals and can compare problems, learn what is being done to improve life safety from fire in other municipalities, and bring home some valuable information and ideas for the improvement of their own fire departments and communities.

At last year's NFPA Annual Meeting in Los Angeles more than 700 fire chiefs, fire marshals, other fire officers, fire fighters and other members of the fire service were included in the record 1,875 attendance. This year's meeting will be held at the Palmer House, Chicago, Illinois, May 19 to 23. A cordial invitation is extended to paid, call and volunteer fire departments to send their officers and men to attend the informative technical and general sessions. A tentative program of the meeting will be published in the forthcoming issue of NFPA *Fire News*.

NEW CLASSIFICATION FOR

Portable Fire Extinguishers

MANY fire fighters may not realize that an entirely new system of classifying portable fire extinguishers was adopted last year. This replaces the classification of fire extinguishers which has been in use for about 30 years and with which most fire fighters are familiar. The new classification appears in the 1957 National Fire Codes in Volume IV covering fire extinguishing equipment and also appears in NFPA Standard No. 10 — "Portable Fire Extinguishers."

Underwriters' Laboratories, Inc., and Underwriters' Laboratories of Canada made hundreds of tests to reclassify all listed fire extinguishers in accordance with the new system.

If the new extinguisher classification was not included in last year's fire training programs, it is important that fire school officials take steps to include this subject in their 1958 fire training programs.

Fire fighters can be consoled that the old system of Class A, B and C fires has been retained. As is well known, the Class A fire involves ordinary combustibles, the Class B fire involves combustibles which primarily require a smothering agent, such as flammable liquids, and the Class C fire involves live electrical equipment. However, at this point, the new system of classification is different.

Under the old rating system the number referred to the number of extinguishers needed to handle a standard test fire; for example, Extinguisher B-2 required two extinguishers to handle a standard test fire for flammable liquids extinguishers. Under the new system the figure 1 indicates that one extinguisher is able to handle a standard test fire in its class, but a figure 2-B would indicate that the extinguisher can handle twice as much fire as a 1-B extinguisher. A 4-B extinguisher can handle 4 times as much fire as a 1-B extinguisher.

This evaluation of extinguishers is very important to fire fighters and it encourages manufacturers to make extinguishers which can handle more serious fires. For example, the size of the extinguisher is no longer the primary factor, although it is taken into account. The manufacturer who has an extinguishing agent that is twice as effective will get a higher numerical rating even though the extinguisher itself may be a relatively small size unit.

Under the new system no numerical designation is given to extinguishers tested for Class C fires. The reason is that the Class C designation merely means that the extinguisher is suitable for electrical fires. As most Class C extinguishers also have a rating for Class B fires, the figure for Class B fires will give some indication of extinguishing capacity.

Fire fighters may be interested in knowing that the sizes of fires the laboratories are using for testing extinguishers under the new method of classification have also been changed. Formerly, for Class A fires, a small 2 by 2 ft. wooden crib was used and, in addition, a 100 sq. ft. vertical wood panel was employed. Also evaluated was the ability of the extinguisher to handle twelve pounds of burning excelsior spread over an area of 4 by 8 ft. Under the new method a 50-foot square vertical wood panel is taken as the basis for ability to extinguish Class A fires. Successful extinguishment results in a 1-A rating. An extinguisher that can put out a 100 sq. ft. vertical wood panel fire gets a 2-A rating, showing that it is twice as effective.

The old method of testing flammable liquid fires was to extinguish a 4-ft. diameter tub containing ½-inch of gasoline on top of water. This brought a B-1 rating. A 2-ft. diameter tub fire had to be handled to get a B-2 rating. Under the new method, the tubs have been supplanted by open square containers one foot high, having horizontal dimensions to provide the

TYPES OF FIRES USED FOR OLD AND NEW METHODS OF CLASSIFYING EXTINGUISHERS

	CLASS A	CLASS B	CLASS C
Definition	**Ordinary Combustibles**	**Flammable Liquids**	**Electrical Equipment**
Extinguishment	**Quenching or Cooling**	**Blanketing or Smothering**	**Nonconducting Agent**
FIRE TESTS OLD METHOD	Class A-1 — Test Fire: (1) 2 ft. x 2 ft. x 2 ft. wood crib; (2) 100 sq. ft. vertical wood panel; (3) 12 lb. excelsior spread over an area 4 x 8 ft.	Class B-1 — Test Fire: (1) Gasoline in a 4 ft. diameter tub Class B-2 — Test Fire: (1) Gasoline in a 2 ft. diameter tub	Class C-1 — Test Fire: (1) 15 lb. cotton waste spread over 4 x 8 ft. area and sprinkled with gasoline Class C-2 — Test Fire: (1) 8 lb. cotton waste spread over 2 x 4 ft. area and sprinkled with gasoline
FIRE TESTS NEW METHOD	1-A — (1) 50 sq. ft. vertical wood panel 2-A — (1) 100 sq. ft. vertical wood panel	Gasoline in Open Containers 1-B — 2½ sq. ft. 2-B — 5 sq. ft. 4-B — 10 sq. ft. 6-B — 15 sq. ft. 10-B — 25 sq. ft. 20-B — 50 sq. ft. 40-B — 100 sq. ft. 80-B — 200 sq. ft. Note: All of these tests are conducted with square containers 1 ft. high and having horizontal dimensions to provide the required area of burning gasoline.	NO NUMERICAL CLASSIFICATION

Underwriters' Laboratories of Canada recently published this chart to show the comparison of test conditions used in rating fire extinguishers in the old and new classifications.

Chart I

MAXIMUM UL RATINGS FOR CLASS A EXTINGUISHERS AS OF JANUARY, 1958

Type Extinguisher by Agent	Ratings as Given in UL Listings									
Nominal Capacity and Description of Device	**1-A**	**2-A**	**3-A**	**4-A**	**6-A**	**10-A**	**12-A**	**20-A**	**25-A**	**30-A**
Water, Gas Expelled										
1¼ Gallon, Cartridge Operated	■									
1½ Gallon, Stored Pressure Operated	■									
2½ Gallon, Cartridge Operated	■	■								
2½ Gallon, Stored Pressure Operated	■	■								
Pump Tank										
1½ Gallon	■									
2 and 2½ Gallon	■	■								
4 Gallon	■	■	■							
5 Gallon	■	■	■	■						
Soda-Acid										
1¼ to 1½ Gallon	■									
2½ Gallon	■	■								
17 Gallon, Wheeled	■	■	■	■	■	■				
33 Gallon, Wheeled	■	■	■	■	■	■	■	■		
Foam										
1¼ and 1½ Gallon	■									
2½ Gallon	■	■								
5 Gallon	■	■	■	■						
17 Gallon	■	■	■	■	■	■				
33 Gallon	■	■	■	■	■	■	■	■		
Anti-Freeze Solution										
1 Gallon, Loaded Stream	■									
1¼ Gallon, Cartridge Operated	■									
1½ Gallon, Stored Pressure Operated	■									
1¾ and 2½ Gallon, Loaded Stream	■	■								
2½ Gallon, Cartridge or Stored Pressure	■	■								
17 Gallon, Wheeled, Loaded Stream	■	■	■	■	■	■				
33 Gallon, Wheeled	■	■	■	■	■	■	■	■		
33 Gallon, Wheeled, Loaded Stream	■	■	■	■	■	■	■	■		
Wetting Agent										
10 Gallon	■	■	■	■	■	■				
20 Gallon, Wheeled	■	■	■	■	■	■	■			
45 Gallon, Wheeled	■	■	■	■	■	■	■	■	■	
50 Gallon, Wheeled	■	■	■	■	■	■	■	■	■	■

Shaded areas indicate maximum ratings given to types and capacities of extinguishers. Not all extinguishers obtain this maximum rating. For up-to-date ratings refer to the Fire Protection Equipment Lists and supplements, published by Underwriters' Laboratories, Chicago, Illinois.

number of square feet of area needed for proper testing. The 1-B extinguisher has to handle a fire of 2½ square feet with gasoline 2 inches deep, and with a pre-burn of one minute as compared with twenty seconds pre-burn for the old test. Thus a 2-B extinguisher handles 5 square feet of fire, a 10-B, 25 square feet, and an 80-B, 200 square feet.

THE chart above and the one on the next page show graphically the comparative ratings of extinguishers. It is important to note that *these charts are based on the maximum UL listings of extinguishers as of January, 1958.* The charts do not include extinguishers listed by the laboratories after publication of the January fire protection equipment list.

The charts should be useful and easy to understand. For instance, suppose a fire fighter wanted to know how many UL listed extinguishers were rated 2-A or higher. He simply refers to Chart I and counts the number of extinguishers listed on the horizontal lines corresponding with the shaded boxes under the 2-A heading. He should find that there are 23 extinguishers of 2-A or higher rating: two water extinguishers (gas expelled), four pump tank devices (2-, 2½-, 4-, and 5-gallon), three soda-acids, four foam, six anti-freeze solution devices (including the 2½-gallon, loaded stream), and four wetting agents.

In the same way, Chart II shows for example, that 18 UL listed extinguishers are rated as 10-B (relatively 10 times more effective than a 1-B device) or higher. The chart may also be used to compare the relative fire extinguishing ability of devices with different extinguishing agents. As an example, note that the top rating of a 10-pound carbon

Chart II

MAXIMUM UL RATINGS FOR CLASS B EXTINGUISHERS AS OF JANUARY, 1958

Type Extinguisher by Agent	Ratings as Given in UL Listings											
Nominal Capacity and Description of Device	½-B	1-B	2-B	4-B	6-B	8-B	10-B	12-B	16-B	20-B	40-B	80-B
Carbon Tetrachloride												
1 to 8 Quart, Pump Type	■											
1 Quart, Stored Pressure	■	■										
2 Quart, Stored Pressure	■	■	■									
1½ Gallon, Stored Pressure	■	■	■	■	■							
Chlorobromomethane												
1 Quart, Stored Pressure	■	■	■									
2 and 2½ Quart, Stored Pressure	■	■	■	■								
1 Gallon, Stored Pressure	■	■	■	■	■	■						
1½, 3 and 3½ Gallon, Stored Pressure	■	■	■	■	■	■	■	■				
Loaded Stream												
1¾ Gallon	■											
2½ Gallon	■	■										
Carbon Dioxide												
2½ to 5 Pound	■	■	■									
5 Pound	■	■	■	■								
10 Pound	■	■	■	■	■							
15 Pound	■	■	■	■	■	■						
20 Pound	■	■	■	■	■	■	■					
50 Pound	■	■	■	■	■	■	■	■	■			
75 and 100 Pound, Wheeled	■	■	■	■	■	■	■	■	■	■		
Foam												
1¼ to 1½ Gallon	■	■	■									
2½ Gallon and 5 Gallon	■	■	■	■	■							
17 Gallon, Wheeled	■	■	■	■	■	■	■	■				
33 Gallon, Wheeled	■	■	■	■	■	■	■	■	■	■		
Dry Chemical												
1 Pound	■	■										
1½ to 2 Pound	■	■	■									
2½ to 3 Pound	■	■	■	■								
4 Pound	■	■	■	■	■							
5 Pound	■	■	■	■	■	■						
10 Pound	■	■	■	■	■	■	■	■				
15 Pound	■	■	■	■	■	■	■	■	■			
20, 25 and 30 Pound	■	■	■	■	■	■	■	■	■	■		
75 Pound, Wheeled	■	■	■	■	■	■	■	■	■	■	■	
150, 250 and 350 Pound, Wheeled	■	■	■	■	■	■	■	■	■	■	■	■

Shaded areas indicate maximum ratings given to types and capacities of extinguishers. Not all extinguishers obtain this maximum rating. For up-to-date ratings refer to the Fire Protection Equipment Lists and supplements, published by Underwriters' Laboratories, Chicago, Illinois.

dioxide extinguisher at present is 6-B; whereas the top rating for a 10-pound dry chemical extinguisher in the chart is 12-B (indicating twice the extinguishing capacity on Class B fires).

Also important is the fact that not all the manufacturers' devices in each capacity grouping are equally rated. For example, ratings given to listed 15 pound carbon dioxide extinguishers range from 2-B up to 8-B.

The charts on these pages, therefore, show the highest ratings given for each type and capacity of fire extinguisher.

The NFPA Committee on Portable Fire Extinguishers worked for more than five years with the Underwriters' Laboratories in developing the new standard. Since the new edition of Standard No. 10 was issued in July, 1957, more than 150 different types of extinguishers have been retested. This involved over 750 test fires which consumed 30,000 gallons of gasoline. It may be that some fire training schools will want to provide test pans conforming to the new standard and have fire fighters practice using the various extinguishers in accordance with the new classification.

(*Since firemen's training schools may want additional copies of this article for distribution in training classes, it is being reprinted. Single copies are available from NFPA at 25 cents each; orders of 25 or more copies receive a discount of 25 percent. — Ed.*)

LET ME GO BACK IN CHIEF

I FEEL GREAT!

by Lewis H. Lambert, M.D.
Staff Anesthesiologist, Hitchcock Clinic, Hanover, New Hampshire
Member, Hanover Volunteer Fire Department

THERE is little doubt that our bodies require a certain amount of oxygen to maintain life and a state of well-being. If there is any question about this fundamental fact, ask the fireman who has just been hauled out by the heels from a smoke and heat filled atmosphere. Usually, and correctly so in most instances, such an unhappy person is made to lie down, and oxygen from an inhalator is administered.

Depending on the nature and severity of conditions causing the fireman's collapse, the above treatment may restore the patient to "feeling pretty good," and the question arises as to what disposition should be made: return to full duty, return to limited duty, or be placed on sick leave. Actually, each case must be judged separately. However, in general, the safest way to avoid trouble, present and future, is to order the victim "off the fire" and to report for duty only when cleared by competent medical authority.

To understand the reason for this rather dogmatic viewpoint it might be well to review briefly 1) the actual mechanics of respiration and 2) what can happen at the various stages of respiration from exposure to fire fighting hazards.

There are several steps that must function properly before the oxygen in the atmosphere (assuming that *there is sufficient oxygen* at sufficient pressure in the atmosphere) reaches its ultimate consumers, the many cells of the body. First, the oxygen must have a clear passage through the various tubes deep into the tiny air sacs of the lungs, the alveoli. At this point, the oxygen must pass through a very delicate membrane, call it a filter if you will, into the blood stream. Here the oxygen is picked up by the red blood cells and carried to the various parts of the body. Obviously then, there must be a sufficient number of red blood cells traveling under a sufficient head of pressure to reach the various parts of the body. At the site of delivery by the blood stream the reverse process takes place. The oxygen now leaves the red cell, crosses another filter-like membrane into the tissue spaces. Finally, the cell itself must be "in condition" to absorb and utilize the oxygen. Nothing has been said about the manner in which carbon dioxide is gotten rid of, but in general the total process of oxygenation is reversed. It might be well to make the point that this rather complex process of breathing is controlled by a special nervous mechanism in the brain which responds to many stimuli, such as increased effort, increased nervous tension, or to some defect in any one step within the respiratory cycle itself.

From the above one can see that there are many circumstances in fire fighting which must adversely affect, either temporarily or chronically, one or more steps in the process of tissue oxygenation. In all instances the fireman is usually operating under conditions of increased nervous tension and muscular effort. That is, the demand for oxygen is considerably greater than when he is at rest.

The simplest complication may be that of working in an atmosphere where the oxygen content is less than that of ordinary air, for example, the old cellar hole, deep well, etc. Watch for the fireman who begins to show poor judgment, becomes pugnacious or silly — he is undoubtedly beginning to show oxygen lack and should be removed from the area and given oxygen, although fresh air will probably suffice.

In the "hot spot" there are probably a number of processes at work against the fireman: lack of oxygen, heat, and gases of probable toxicity. The delicate membranes of the air passages do not withstand any of these agents well. Heat and irritant gas may cause an edema, a swelling of these membranes, so that their ability to allow passage of oxygen into the blood stream is decreased. The very fact that the cells composing these membranes are not being fed sufficient oxygen also alters their ability to allow passage of oxygen. Although all these undesirable effects may be temporary, they are not fully overcome by only a brief rest and exposure to high concentrations of oxygen. At rest and with "whiffs of oxygen" the patient may feel "good," but don't let him go back to work.

Another factor which must be considered is the poisonous gas. The best example of this is carbon monoxide which may be present in any poorly ventilated area. This gas alters the red blood cells so that, even though there may be oxygen present, the cells are not able to pick up the oxygen and carry it to

the tissues. Rest and increased oxygen may help this man, too, but again he is not ready to resume full fire duty in just a few minutes. Other gases may affect the respiratory cycle in different ways. They may depress the nerve center that controls breathing. They may alter the blood circulating mechanisms that are carrying oxygen into the tissues — the net result being a sick fireman who needs prolonged rest and medical advice before resuming duty.

Up to this point the assumption has been that the fireman in question is the perfect physical specimen and well rested. Every department has the middle age group, the overweight group, the "already tired" group. This is not a criticism in any way, but merely a statement of the way things are. Add to these groups those men that have a "little cold." In all of these different conditions oxygen demand by the body is going to be increased even before the men start fighting a fire. Fatigue will undoubtedly show its effects early. It has been said that "a few whiffs of oxygen will really set one up," "clears the head," etc. This may be true, but oxygen used in this manner amounts to nothing more "than whipping a tired horse." The already fatigued smoke eater, who feels better after lying down and breathing 100 percent oxygen, and then returns to the burning building, may suffer a real relapse necessitating his being dragged out a second time. The possible harm to him and his rescuers is apparent.

Obviously, there are many conditions which have not been touched upon and many specific questions that might be raised. The human body can stand a whale of a beating before it quits. Feelings of excessive fatigue and/or collapse are nature's sign that "enough is enough." It is difficult, particularly at the fire scene, to completely and carefully evaluate all conditions leading to the collapse and removal of a man from the fire. Rest and oxygen therapy may effect a seemingly remarkable restoration. However, in the absence of competent medical advice, return to full fire duty seems sheer folly, the consequences of which may be permanent injury or death — not only to the patient, but to personnel who must render aid and rescue.

Sizing Up the Fire Hazards

From a talk by Warren Y. Kimball, Manager, NFPA Fire Service Department, Editor, FIREMEN Magazine, at the 1958 North Carolina Fire Inspectors' Short Course in Greensboro

Part I

EVERY fire is governed by the triangle of fuel, oxygen and heat, with which you are familiar. But, as Lloyd Layman has pointed out in his books, "excessive" heat is the one abnormal factor in a fire. Yet there are other basic conditions or circumstances regarding fire potential that we, as fire inspectors, should understand.

Let's take the word "fuel." We know that fuel is anything that will burn, such as solids, flammable liquids and gases. Actually, all fuels burn as a gas as they vaporize or are distilled by heat, but it is the form and arrangement of the fuel that first concerns the fire inspector.

Now, in fire protection we generally divide fuel problems into three groups: the buildings, including combustible items or the structural arrangement that may be expected to contribute to a fire problem; the contents, the things that can be expected to add fuel to a fire; and outside fire fuels such as lumber storage, fuel storage and even combustible natural fuels as brush, weeds or woodlands.

Next we are concerned with the amount of fuel readily subject to one fire or to one loss. This perhaps is the most important single problem in fire prevention and fire protection work today. Take the $45,000,000 Livonia fire. The entire huge plant area was subject to destruction by one fire, when a relatively small fire became out of control. The area was too large for the available fire protection. There were no cutoffs, fire walls, enclosures or other means for confining the heat or fire to one area where it might be localized thus limiting the loss.

Similarly, when combustible buildings are too close together and are subject to one fire, we call this an exposure problem and the resulting fire loss, exposure loss. In reality the trouble is that we have just too much fuel concentrated subject to one fire.

Any person concerned with fire prevention inspection must understand this.

When fire areas are smaller we have a better chance to control fire with available equipment. We know that every pound of a certain burning fuel gives off a certain amount of heat, measured in British thermal units. Thus a large fire area gives off tremendous amounts of heat. The heat may be unapproachable, even out of range of heavy fire streams. More fundamental is the fact that extinguishing agents have a certain amount of cooling effect, which also may be measured in BTU. Thus a gallon of water applied with maximum efficiency as spray or fog will absorb the heat from about one pound of burning wood or paper. So, when you find a great pile or area of fuel, called "fire load," you will require very great quantities of water or other extinguishing agents to handle the heat should a fire start.

Now let us translate this into an inspection problem. The fire inspector is concerned with potential fire areas; he orders removal of fuels piled too close together or storage and stockpiling that endangers other buildings, enlarging a single fire area. He knows that fire walls serve to limit fire areas to controllable sizes, so he is concerned with the arrangement and stability of the fire walls. Do they extend up through and above the roof so that fire cannot pass over the top? Do they extend outward sufficiently in frame buildings so that fire cannot overlap? Are there double fire doors protecting both sides of the enclosure? Are these doors labeled and approved for the purpose for which they are being used? Are they in good operating condition and unobstructed by stock or not otherwise blocked open? Are there other openings through which fire would spread that must be protected?

In other words, we as fire inspectors must be reasonably certain that the fire area is limited to a reasonable potential. If fire does occur,

will it be of a size that fire fighters may be expected to handle?

In many conveyor type operations the problem of isolating fire areas becomes more complicated. The water curtains, draft curtains, roof venting and other methods used for protecting such areas are of concern and interest to the fire inspector who must see that these things are in operating condition to carry out their intended purpose. We know one industrial plant fire chief who says that whenever he notes a certain gleam in the eye of one of the plant's development engineers he smells a new fire hazard. It is this chief's job to counter the hazards brought in by new industrial processes and maintain a fire protection facility that will quickly localize and snuff out any fire. He cited the instance where he noted "that certain gleam" and found that the research men were carrying on an experiment with hazardous and explosive materials in a solvent storage room because it was marked "hazardous area." They assumed that that was where the hazards were to be kept because it had special fire protection. This, of course, points to the oft-repeated reference to the human element as the unpredictable problem of the man concerned with fire safety.

What we have said about fire areas in structures goes for building contents and outside storage. The nature and amount of fuel in any given fire area is of great concern to the fire inspector. Another important related factor is the matter of distance that separates the particular fuel from other combustibles. Distance is one of the most effective heat barriers, for heat dissipates in relation to the square of the distance. NFPA fire prevention codes and standards have frequent mention of the safe distances between various types and amounts of fuels such as lumber, flammable liquids, combustible gases and other potential fuels.

With contents or stocks, four primary factors are to be considered.

(1) What is the potential fuel: *i.e.*, wood, paper, flammable liquids, gases, etc.?

(2) What form is it in? Is it finely divided, readily ignited, explosive, or is it in a form which is hard to ignite and slow burning?

(3) How much of this material is subject to one fire? In other words, how big and hot a fire can we expect? How much loss can we expect? Common sense and fire experience tells us much about the answer to this question.

(4) Is the material a sufficient distance from other combustibles so that we have a reasonable chance to confine the fire to an area which will not be disastrous to the owner and occupants, as well as economically?

Next we come to the countermeasures, the protective or fire fighting facilities. We have sized up our potential enemy; found out how big it is, how much heat may be generated. And let us not forget that a primary responsibility of the fire inspector is to see that the necessary fire fighting facilities are available and in working order at all times. In a very large proportion of our serious fires the fire fighting facilities are inadequate or lacking at the start of the fire.

Of course, the best facility for supporting fire attack is the automatic sprinkler, especially when it is coupled with supervisory alarm service. As inspectors we are much concerned with the maintenance of the sprinkler system. As fire fighters it is our primary duty to see that the sprinkler system gets *plenty* of water. And by plenty of water I mean that in any appreciable fire in a sprinklered building we should be prepared to pump immediately at least 1,000 gpm at good pressure into the sprinkler system. If we need a minimum of 100 pounds at the sprinkler siamese we will generally want to operate the pump at 150 pounds to overcome friction loss. This 1,000 gpm figure is based upon tests of the amount of water that sprinklers may require when a number of heads open heat in a serious fire. Supplying a sprinkler system is like a military operation. We have our scouts out, our "thin gray line" of sprinkler piping with nozzles spaced out to deliver about 15 gpm apiece. Frequently, the pressure provided on the top lines is low, and the volumes are sufficient only to hold incipient fires under control until other protection can be brought into service. The fire makes its attack along our sprinkler line. The sprinklers counter and give us the warning. Are we at once going to abandon our front line positions to the fire as so many fire departments have unfortunately done in the past by taking all the water for a defensive stand from the outside? Or will we use the proper tactics by bringing them fast reinforcements through two counter-attack or support measures: (1) by pumping adequate amounts of water under good pressures into the sprinklers operating along the front line of the fire, and (2) by bringing supporting hose lines and equipment to the scene of the fire to back up the sprinklers and complete the successful attack which the sprinklers have started? To do the latter most effectively we should generally use lightweight mobile lines, preferably preconnected and ready, and equipped with spray nozzles. Where flammable liquid fires are concerned we may also need additional Class B extinguishing equipment.

Thus, the good fire inspector looks to the fire defense. The fire fighting forces will see that the apparatus is ready, but the inspector must see that private water supplies are not impaired, that alarm facilities are working, that extinguishing agents are properly placed, are of the right type for the job, and are in working condition. In a very great sense he is the liaison man between the public, powerful, reserve fire force and the private property owner who is concerned with the safety from fire and continuity of his plant or premises. The public inspector also has another important concern: to see that the general public is safeguarded when the private owner does not understand or appreciate fire hazards that may not only endanger his property but may injure others and destroy other persons' property. Thus, in that sense, the fire inspector is an enforcing officer.

(*Continued next month*)

Correction Notice

In the February issue of FIREMEN magazine, reference was made to electric heating cables in ceilings of dwellings. The article stated that if a fire fighter is not well grounded and contacts the electrical conductor, he could suffer shock. Actually, the fire fighter will receive a shock if he is well grounded. The safest method of pulling down such cables, of course, is to make certain that the electric power is cut off before fire fighters contact the cables with hose streams or tools. — *Ed.*

Foaming Runways for Crash Protection!

Wide World Photo

Los Angeles International Airport, Los Angeles, California, October 31, 1957. A United Air Lines DC-7B with eleven persons on board arrived over Los Angeles on a scheduled flight from New York and was preparing for a landing. Crew discovered that right main gear could not be extended. Plane circled for 2 hours and 33 minutes. Finally, crew decided to land with all gear retracted. Notification of the difficulty had been relayed to the Control Tower at the Los Angeles International Airport at 7:45 A.M.

Fire Department received alarm at 8:47 A.M. Foam was laid on the runway by three of five foam crash trucks available at the airport from the Los Angeles Fire Department, the North American Aviation Fire Department and the Douglas Aircraft Company Fire Department. One truck laid pattern down center of the runway starting about 2,000 ft. from the runway threshold. Two other trucks widened pattern and built up depth of foam blanket by the use of hand lines. Other two foam crash trucks were kept in ready standby. Fire Department later reported that foam pattern was 1,680 ft. in length, averaged 70 ft. in width, 3 to 4 inches in depth.

Foam blanket consumed approximately 10,000 gallons of water and 450 gallons of foam concentrate. Tanks of the crash truck were refilled from relay hose lines, utilizing two triple combination pumpers on each line. Actual time for laying the foam blanket was less than 25 minutes. Extra supplies of foam concentrate were made available via light pick-up trucks carrying 5-gallon containers.

The aircraft was flown-in (all gear retracted) with normal full flaps after a trial low pass.

Initial touch down was about 1,000 ft. from end of foam strip. Aircraft skidded about 1,500 ft., stopping in foam blanket about 500 ft. from approach end of the blanket. Sparks were clearly evident during skid on the dry runway, but disappeared immediately on entering foam blanket. A small fire might have started in one engine during final 600 ft. of skid but this has not been definitely established. Foam streams from one turret and hand lines were applied to this engine by fire fighters after the aircraft came to rest. No fuel spillage or ruptured lines occurred except from the oil cooler assemblies.

IN the past few years some airport fire brigades have been testing the efficacy of foam on runways as a means of reducing friction spark hazard when planes must make "wheels up" landings. Some of the foam laying operations have brought good results; some have not. The techniques, however, have been of sufficient interest to bring study and tentative recommendations from the NFPA Committee on Aviation and Airport Fire Protection, and to stimulate research by the U.S. Naval Research Laboratory.

On these pages are reported three incidents in which foam application on runways proved successful. The stories are digested from NFPA Aviation Bulletin No. 207 (50 cents) and Special Aircraft Accident Bulletin, Series 1957 No. 6 (25 cents). They indicate the type of preplanning, apparatus utilization and fire attack teamwork necessary for such emergencies.

There are many factors to be considered, however, before responsible authorities can give the "go ahead" for foaming a runway for a certain emergency. A number of these are detailed in the recommendations of the NFPA Committee, published in Aviation Bulletin No. 209 (25 cents). They include: the time available for producing and distributing the foam covering, landing techniques to be used by the pilot, foam making equipment available — its capability of laying the blanket and being reserviced quickly, speed of the landing aircraft and possible length of skid, position and movement of apparatus, and other important factors. One of the most important recommendations of the Committee is that "*under no conditions, should a foam protective blanket be applied to a runway surface if time limitation or physical conditions would prevent all available aircraft rescue and fire fighting vehicles from being fully operational at the time of actual touchdown.*"

Studies of friction spark ignition in crash fires were reported in the October, 1957, NFPA *Quarterly*. The studies were based on tests of different metals sliding on concrete or asphalt runways and their potential for producing sparks to ignite flammable liquids.

Conclusive data is not yet available on the effectiveness of foam in reducing friction spark ignition hazard on concrete or asphalt runways, nor have there been definitions of the impact conditions which would make foam blanketing of the runway desirable. However, since particular aircraft emergencies may lead to decision by those in authority to try foaming a runway, Aviation Bulletin No. 209 presents some helpful recommendations that should be considered. Summarized, these are:

That direct radio contact be maintained between ground crews and the pilot.

That auxiliary tank trucks lay the foam blanket through ground sweep nozzles or hose lines; primary aircraft rescue and fire fighting vehicles should be ready for action immediately after the impact.

That time study be made of foam laying operations and vehicle reload requirements. Preplanning also should include arrangements for adequate quantities of foam for such emergencies.

That the location of the foam blanket in relation to the runway threshold be determined by the pilot in contact with the ground crew.

Travis Air Force Base, California, December 15, 1956. A C-124A notified the Travis Air Force Base Control Tower at 1:40 A.M. of a malfunction of its main gear. Gear was in locked-up position and could not be lowered. There were six crew members aboard and apparently adequate fuel to circle the Air Base until preparations had been made for foaming of the runway. Alarm then went to the fire department at Travis Air Force Base that a wheels-up landing would be made on Runway 21.

Three crash vehicles, an O-10, an O-11A and a Class 155 went into action to lay down a foam pattern for the landing. Pattern was started 1,200 ft. from the approach end of the runway and was extended for 3,000 ft. down the center. The Type O-10 laid foam 20 ft. wide utilizing its top turret. The O-11A laid a pattern also 20 ft. wide to increase the total width to 40 ft. A Class 155 crash truck followed up the other two to increase the foam depth to approximately 4 inches. Vehicles, operated at about 5 to 7 miles per hour, gave effective foam coverage of the runway surface. After the vehicles completed the foam laying operation they were sent to a predetermined position and were reserviced with foam from a foam trailer that had been dispatched to the nearest fire hydrant. Simultaneous servicing of foam and water placed the vehicles in an in-service status prior to the actual landing of the aircraft.

Plane landed at 2:37 A.M. at the approach end of the runway just short of the foam pattern. Following impact the pilot cut all power and engines. During the slide from the point of impact to the start of the foam pattern, friction of the fuselage on the runway produced intense sparks and made it appear that the aircraft was on fire. When the plane entered the foam pattern the sparks and apparent fire disappeared. It is probable that the appearance of fire was an illusion but this is not definitely determined. The aircraft slid some 2,500 ft. on the foam and came to rest in a foam blanket, still on the runway. After the aircraft came to rest the foam had a tendency to flow around the fuselage to a depth of 6 to 8 inches.

Fire equipment was positioned to safeguard evacuation route of crew members and additional foam was applied around fuselage and under the aircraft in the event of a fuel cell rupture. The crew abandoned the aircraft without injury or the need for help. Fire fighters entered plane to check for any internal fires and to disconnect batteries and to secure the oxygen system.

That a reference point be clearly established to show the pilot where the foam pattern begins, so that he can position his plane in approaching the runway.

That airport fire crews, after laying foam, take safe positions out of range of collision hazards. After touch down, rescue and fire fighting vehicles can follow the plane and be ready to operate.

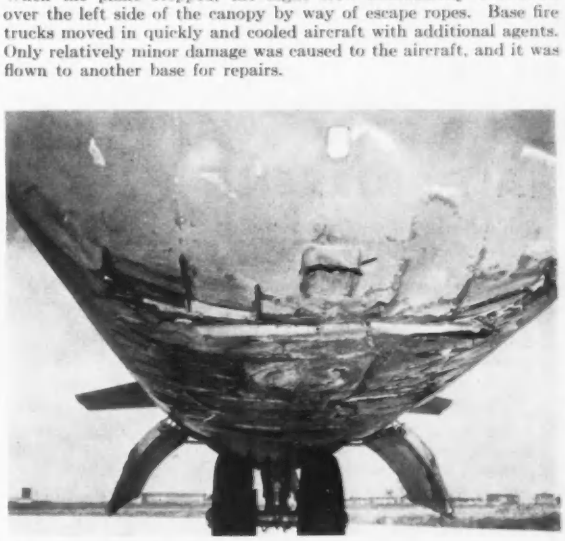
That all unnecessary persons be kept out of the way until rescues have been made and fire control established.

That length, width and depth of the foam pattern will vary with the type of aircraft, length of runway, quantity of foam available, time involved, etc. It is suggested that the full length of the slide of the plane be within the foam pattern. Foam blanket width should be about span between outboard engines plus 10 feet on each side.

Experience to date indicates that a 2 percent foam solution appears to be as efficient on runways as the normal 6 percent solution used for fire extinguishing purposes. The more fluid solution also will make clean-up of the runway a little easier.

McConnell Air Force Base, Kansas, June 10, 1957. While in flight, pilot of a B-47 determined that its forward landing gear would not extend to normal position. He decided to land with all gears retracted and notified the Air Base. Base Fire Department was called but because it had only two foam trucks in commission they requested help from the Boeing Fire Department to lay a strip of foam on the runway to be used. Boeing "Mobile Foam Generator" (reference: *NFPA Aviation Bulletin No. 194*) laid strip of foam 35 ft. wide and 3,000 ft. long down the runway beginning at the 2,000 ft. marker, applying 4,000 gallons of water and 150 gallons of foam concentrate. Complete operation was done by this one Boeing truck which spread blanket in 15 minutes. Foam blanket was about 5 inches deep and remained on runway for 6 or 7 hours. It was necessary to wash the runway after the aircraft was removed.

B-47 crew jettisoned the canopy cleanly while still in flight. Touch down was made at 112 knots (119 mph), and on initial contact with the runway a small momentary flash was observed. The aircraft, supported by the fuselage and outrigger gear doors, went down the runway 1,665 ft. before stopping. During the slide the aircraft, in effect, was throwing up foam on the sides of the fuselage and foam was also scooped into body cavities where the skin was worn through. When the plane stopped, the flight crew immediately evacuated over the left side of the canopy by way of escape ropes. Base fire trucks moved in quickly and cooled aircraft with additional agents. Only relatively minor damage was caused to the aircraft, and it was flown to another base for repairs.



View of belly of B-47 after "wheels up" landing on foam covered runway at McConnell Air Force Base.

Something to be considered during very cold weather is the fact that any foam solution on the runway is liable to freeze, perhaps too quickly to be of much use to the landing aircraft. Also important is the reliability of information concerning landing techniques to be used by the pilot, wind and visibility conditions, runway instrumentation factors, and general operational problems under the emergency conditions.

If other fire departments and airport fire brigades gain practical experience with the techniques of foaming runways, similar to those outlined on these pages, the submission of their findings and conclusions to NFPA would be appreciated.

3 HALE WORKHORSES FOR FOREST FIRE FIGHTERS

Hale's centrifugal portable pumping units are compact, rugged and quick-starting . . . real "workhorses" for fighting forest, field and brush fires. The FZZ pumps 60 GPM at 90 lbs. — FZ pumps 300 GPM at 10 lbs. — HPZF pumps 15 GPM at 200 PSI — the range of volumes and pressures you need for a wide variety of fires.

Other Hale fire fighting units such as the CFUS, WF and Rotary H & 2HB Boosters (listed below), and other Hale power take-off boosters, have been used by forestry departments to meet their specific fire fighting requirements.

OTHER HALE UNITS	
CFUS	600 U.S. GPM at 120 lbs.
WF	150 U.S. GPM at 100 lbs.
H	100 U.S. GPM at 120 lbs.
2HB	200 U.S. GPM at 120 lbs.

Another addition to our line, the

HALE "TORRENT"

Self-priming, portable pumping unit with 1000 auxiliary uses!

The gasoline-driven "Torrent" is ideal for "wetting down" and filling tanks. It features an open impeller which helps prevent "clogging" when pumping muddy or sandy water and requires little or no maintenance.

The unit is lightweight (only 54 lbs.), easy to carry, set-up and use. It is powered with a 2¾ HP 4 cycle engine with a built-in exhaust valve rotator and will pump 7,000 gallons per hour!

Ask for a Demonstration; no obligation.

Send this coupon for our latest circulars

Please send your latest circulars on the Hale Workhorses and the NEW "Torrent."

Name_____

Address_____

Town_____ State_____

HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.
Dept. F.

A MANPOWER UTILIZA

OUTSIDE of the high value districts in many small cities, fire department response to first alarms may be something like two pumpers, each with three men on duty, and an aerial ladder with perhaps only two men. This totals only three pieces and eight men and is considered very poor manning, adequate only for incipient fires. If each engine company lays a 2½-in. line with 1-in. tip, or if each operates two 1½-in. lines, the total discharge regardless of the rated capacity of the pumpers will hardly exceed 400 gpm from the two engine companies. The two-man truck crew is too undermanned to effectively utilize the equipment carried.

The operation looks something like Figure A.

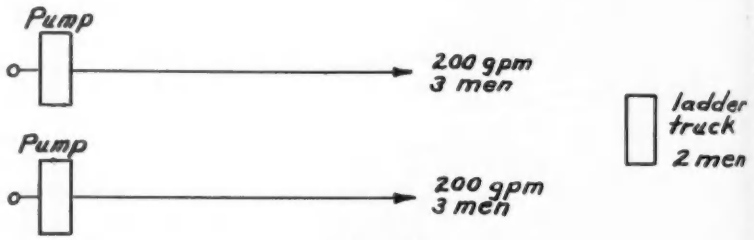


Figure A

This system is wholly ineffective on working fires. There is a lack of teamwork because there are separate units, each too poorly manned to be effective. Not over 25 to 30 percent of the pumper and hose capacity can be utilized and only meager use is made of the truck equipment.

Now let us put some modern concepts of manpower utilization to work and see what results we can get with the same apparatus and manpower. We will combine our two poorly manned pumper units into a good pumper company of five men and two pumpers. One of the pumpers will be the water supply engine capable of utilizing all the water at a hydrant in accordance with methods previously discussed in FIREMEN. The other will be the relay pump with pre-connected lines, water tank, heavy stream nozzle, and its crew can lay at least two big lines simultaneously. This will eliminate our manpower deficiency on the engine company and will permit us to add one man to the aerial ladder company. The result will be a 50 percent increase in manpower in this ladder unit which takes care of rescue, ladder work, forcible entry, ventilation and salvage. (An even better manning of the ladder truck would be desirable, but we are merely reassigning the men we have available, and the improvement should be marked.)

We will operate our two-pumper engine company along the lines developed for the District of Columbia Fire Department by Battalion Chief A. M. Grunwell of the NFPA Committee on Fireman's Training. This method, as previously reported, has tripled the gallons per minute delivered per fire company. The pumper at the hydrant takes all of the water available at that plug and shoves it along to the company's pump at the fire where it is distributed as needed. As Chief Grunwell has demonstrated, one engine company equipped in this manner

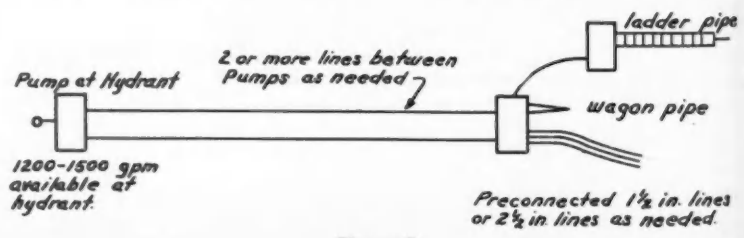

ladder pipe
2 or more lines between Pumps as needed
Pump at Hydrant
wagon pipe
1200-1500 gpm available at hydrant
Preconnected 1½ in. lines or 2½ in. lines as needed

Figure B

...N PROBLEM

can quickly place their 1½-in. lines and wagon pipe in service and also supply a good ladder pipe stream with a total flow exceeding 1,400 gpm in less time than formerly required to provide 400 gpm. This is equivalent to the flow developed by a two or three alarm response under the old inefficient, uncoordinated handline attack.

If the fire requires even greater flows, the other units will be similarly organized and ready to operate at capacity. In the high value districts, several such units would be assigned on first alarms so that a very effective concentration of streams will be quickly available. (See FIREMEN for January 1957, page 32.)

Our reorganized operation will look something like Figure B.

We will be working the same men and equipment but will be utilizing the full capacity of our apparatus. It seems incredible that this 30 percent increase in fire department efficiency has been so widely neglected. It provides not only better coordinated, more efficient operations and the ability to concentrate effective streams of the desired size on fires as needed, but also much more efficient operations at small fires. It makes every individual fire fighter worth ever so much more to his department, and this cannot help but result in better working conditions.

The weak, ineffective company, which often was hardly worth the cost of its equipment and quarters, is eliminated. Each company becomes an effective unit with officers always on duty for both truck and engine companies, which is seldom the case in seriously undermanned departments. In the event of failure of one piece, the company is not stranded but has the other piece available. In abnormal emergencies, the off-duty men can provide the manpower to operate the two pumps as separate, fully manned companies. However, it will be found necessary to recall men much less frequently because of the greater efficiency of the fewer well-manned companies. Supposing a small city

(*Continued on page 23*)

CAIRNS
FIRE HELMETS

THE FIREMAN'S FIRST LINE OF DEFENSE
FOR MORE THAN A HUNDRED YEARS

LEATHER, ALUMINUM AND PLASTIC

REGULATION AND DROP BRIM MODELS

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14 STYLES TO CHOOSE FROM

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Write for Catalog 350 showing everything a fireman needs for his personal equipment — together with Department Record Books, Secretary's Books, and printed forms.

CAIRNS & BRO., Inc. — Allwood, Clifton, N. J.

SINCE 1836

PROTECTIVE CLOTHING — a necessity

Digested from the December, 1957 Iowa State College Bulletin "Fire Service Information"

MANY qualities and factors make up the basic differences between a fire fighter and a water squirter. Men who cannot, or will not, give enough time and thought to understand the basic principles of fire fighting never advance from the water-squirting class. However, the best fire fighter must remain a water squirter in most circumstances unless he is properly dressed.

Those who have the responsibility of providing protective clothing for their fire department should not expect the best results unless they provide adequate protective clothing. All the fire pumps, ladders, hose or nozzles are of limited value unless they are manned by fire fighters. But, to fight fire efficiently, a man must be dressed for the job.

Too many people, some of them firemen, believe that the main purpose of protective clothing is to keep the fire fighter warm and dry. This is perhaps true for the chief, who ideally takes a position some distance from the fire. It might be true for the pump operator, who is also some distance from the fire. However, the opposite is true for the actual fire fighters. The first purpose of protective clothing is to keep the fire fighter cool when he approaches the fire.

While protective clothing enables a fire fighter to do a creditable job, this is not its main function. The main function is to assure the fire fighter the best possible chance of returning to the station, or his home, without a serious injury. From the time he leaves the station until he returns, the fire fighter is exposed to danger.

In case of accident en route to the fire, the helmet, with the chin strap fastened, can be a life saver. The heavy clothing affords some protection from cuts and abrasions in traffic accidents. At the fire scene, before entry, and for men who remain on the outside, the proper clothing is necessary protection. It protects these men in case of falls on the fire ground, flying debris due to falling walls, falling electrical wires and explosions on the fire scene.

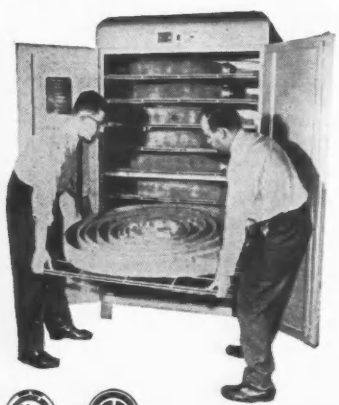
The last item is perhaps most serious. At almost every fire there are elements or conditions which can cause explosions of varying degrees of severity. When an explosion occurs, the fire fighter may be subjected to blasts of flame or even sprayed with a flammable liquid. Under these conditions good protective clothing is the fire fighter's strongest aid to survival.

For men who do the actual fire fighting job, protective clothing is

Better Hose Care-with CIRCUL-AIR
HOSE CONDITIONING EQUIPMENT
WASHERS • DRYERS • TURN-TABLES • STORAGE RACKS

ROTO-JET HOSE WASHER
WASHES — RINSES — DRAINS

Washes, Rinses, Drains hose thoroughly and quickly. Simple, one-man operation. Ashes, dirt, mud and sludge are scrubbed out and flushed away. Saves time. Lengthens hose life



FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life. No other drying method is so fast — so economical — so easy to use. Circul-Air is the preferred drying method in over 4,000 leading Fire Departments.

ACCEPTED — APPROVED
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Approved by Underwriters' Laboratories . . . and Canadian Standards Association. Recommended by all leading fire hose manufacturers.

Porto-RAK

The fast, modern way to handle, store and load hose.

MOBILE
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Eliminates the HARD work of loading hose.

Holds 1,800 feet of 2½" hose and proportionately more 1½" hose in an 8½' space (loading table detached). Easy, convenient to use. Roll it right up to the truck for complete hose reload — out of the way when not in use. Equipped with locking fiber-wheeled casters.

WRITE FOR FOLDER

THE CIRCUL-AIR CORPORATION
575 EAST MILWAUKEE
DETROIT 2, MICHIGAN

of even greater importance. They must approach the fire where they may be subjected to intense heat, molten tar dripping from the eaves, and flaming debris.

In some cases, rescues need to be effected before hose lines are available. Good protective clothing gives the fire fighter a much better chance to complete such rescue jobs.

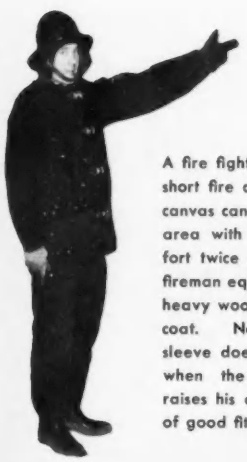
On entry into the building the fire fighter is subjected to many types of injury caused by stepping or falling through burned-out floors, falling bricks or structural members, molten or flaming materials, dangerous explosions, and flame, steam and hot air forced in his direction by hose streams wielded by other nozzle crews.

Fire fighters may be trapped or pinned in hot areas. In these cases their chance for survival until they escape or are rescued will depend to a large measure on the quality of their protective clothing.

Full protective clothing should be worn until the fire fighter leaves the scene of the fire. It should never be discarded or loosened because of hot weather or during the overhaul operations. Floors and walls can still fall without much warning during the overhaul operation.

The same protective clothing should be worn in summer as in winter. So-called winter liners should not be removed from the fire coats.

The main purpose of the fire coat and pants is to protect the fire fighter from burns. These clothes may save him from being cooked if he is buried under a pile of hot debris before being rescued.



A fire fighter wearing a short fire coat of heavy canvas can stay in a hot area with relative comfort twice as long as a fireman equipped with a heavy wool-lined rubber coat. Note that the sleeve does not hike up when the fire fighter raises his arm — a sign of good fit.

model 174 *for better* Fire Trucks

The new Super Beacon Ray Model #174 is a four-way 360° revolving warning light. It does not revolve continuously. It revolves through 95° and reverses to produce an "off beat" irregular flash of increased intensity.

The Super Beacon Ray revolves more slowly than conventional beacons, almost doubling the beams effectiveness. Having two lamps more than the ordinary beacon offsets the slow rotation and provides proper flash frequency and interlude for maximum results. The Super Beacon Ray #174 is identical in general appearance and dimensions to the famous, original Beacon Ray. Available for permanent roof mounting, for pipe mounting, or for demountable appliances. Write for Bulletin No. 22 today.

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Onan ELECTRIC PLANTS

ELECTRIC PLANT NEWS

Onan ELECTRIC PLANTS

Police and fire departments are assured power

Onan 10KW Emergency Electric Plant protects community building

Among the many modern features of the new community building in Indian Hill, Ohio, is *insurance against power interruptions.* When disasters knock out highline power, the Onan Electric Plant starts automatically and supplies all the electricity needed for police and fire departments. Provides current for lights, radio and other electrical equipment. Allows vital municipal services to operate normally, *protecting the community.*

The Onan 10KW, Series "CW" standby plant at Indian Hill is powered by a 4-cycle, 2-cylinder, air-cooled engine. It is equipped with Vacu-Flo cooling which allows installation in a closed room or small compartment.

Check Onan quality and low prices before you buy an electric plant for any purpose.

A.C. Models: 500 to 75,000 watts. Also D.C. and Battery Charging units.

Write for folder on standby and portable models

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2962A University Ave. S. E., Minneapolis 14, Minnesota

Onan ELECTRIC PLANTS

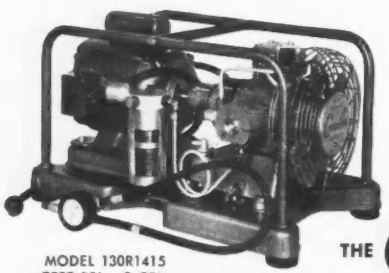
ELECTRIC PLANTS • AIR-COOLED ENGINES • GENERATORS • KAB KOOLER

From one chief to another . . .

CHIEF WM. J. CAWKER
TOPEKA, KANSAS, SAYS:

"The Cornelius air compressor is a valuable asset to any fire department."

Chief Cawker reports: *"The City of Topeka moved to replace canister type masks with pure air masks in May, 1952. When the change-over was completed we solved the problem of a dependable supply of compressed air through the acquisition of a Cornelius Model 130R1415 high pressure air compressor. This cleared up any uncertainty of an adequate supply of clean air. This compressor is a valuable asset to any fire department."*



MODEL 130R1415
3000 PSI — 2 CFM
Weight complete — 95 lbs.

There is no substitute for an abundance of pure, fresh air for prompt, effective fire fighting. Write today for FREE Cornelius portable compressor catalog or call your fire equipment distributor for a demonstration. Find out why Cornelius compressors are recommended by fire chiefs everywhere.

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CIRCLE D® Rides The Leaders

Leading Apparatus Builders Furnish CIRCLE-D-LIGHTS

1. Shock and Ice Water Test proves **CIRCLE-D LAMPS** can take it.
2. Silicon Gasket cushions lamp — withstands heat, remains soft and pliable.
3. Full depth housing for complete lamp protection.
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8. Twist lock cord connection — can't pull loose.
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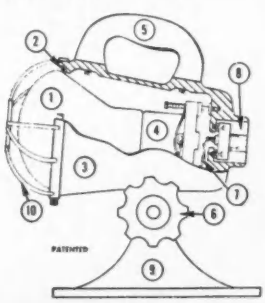


CIRCLE-D's are designed to take the abuse of emergency use.

Write for Catalog P2.

NATALE MACHINE AND TOOL CO:
339 State Highway No. 17 Carlstadt, N. J.

The general requirements for fire coats are weight, fit and ease of fastening. The coat must be heavy enough to protect the fire fighter, and it should be well fitted. A coat which exposes the wrist when the fire fighter raises his arm is of little value. The buckles, or snaps, should be quick and easy to operate.

A rubber coat with a very thin lining should be referred to as a raincoat — not as a fire coat.

If this type of coat is all that a department has available, it can be improved by obtaining painters' jackets to provide additional lining; or fire fighters can make sure they have on plenty of other clothing under the light coat to protect them from the heat.

The fire helmet is the most important piece of protective clothing. It protects the fire fighter from head injuries. A fire fighter would be safer barefooted and in pajamas *with* a good fire helmet than he would be with a fire coat and boots *without* the helmet.

If the fire helmet is made of non-conducting material, it affords some protection from hot electrical conductors.

The brim of the fire helmet should be large enough so that it can be used to shield the face and neck from flames. The experienced fire fighter learns how to use this brim by tilting his head to the most advantageous position to protect himself against face burns.

The helmet should be equipped with a good chin strap which should be fastened whenever the helmet is worn.

Fire boots should be well lined or insulated for protection against heat and cold. They should have steel insoles to prevent puncture wounds to the feet.

Good gloves are a must for the active fire fighter. If the nozzle crew is forced to back away because of burned hands and uses the fire

Gloves are an essential part of clothing. They protect the fire fighter from burns and cuts as well as fire and cold weather.

Boot size should be determined by the type of fire coat worn with it. Knee boots are designed for short coats and bunker pants. Hip boots are worn with longer fire coats. All boots should have steel insoles.

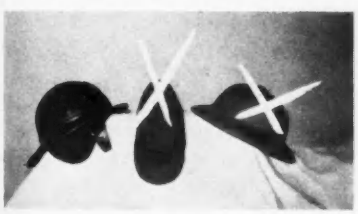
stream in an inefficient manner, the fire may be lost. During overhaul, gloves are an invaluable aid and protect the men from burns and cuts.

As with fire coats, canvas gloves, either plain or leather-faced, give the best protection. At a hot fire, rubber gloves are little better than nothing. This has been illustrated, or proven, in many of the test fires conducted in Iowa.

In extreme cold weather, mittens may give better protection against the cold, but many of the jobs around a fire require more use of the fingers than is possible with mittens.

The type of hand protection that the individual fire fighter wears may depend on the type of job he is expected to do at the fire and his individual preference.

The important thing is that he is aware of the need for good protective clothing throughout the year, in Winter, Spring, Summer and Fall!



Here are four types of head coverings that are sometimes worn by men at fires. Only the regulation fire helmet should be used. All others are as useless and disastrous as the invisible fourth "head covering."

Industrial Fire Brigades Training Manual

$3.25 per copy

NFPA PUBLICATIONS DEPARTMENT
60 Batterymarch Street, Boston 10, Mass.

Hose itself is crack-resistant, non-acid-forming, leakproof synthetic rubber.
Double-layer jacket; inner layer cotton, and edges of outer layer 100% DACRON for maximum resistance to wear and mildew.
DACRON at the vital folding edges keeps these areas "alive" even after prolonged storage.

QUAKER TUFF-EDGE® HOSE
folds flatter without cracking

Even under constant flexing and tight packing—the hardest wear you can give any fire hose—TUFF-EDGE by Quaker stands up far longer than former high-quality cotton-jacket hoses. Longer life, 15% less weight, and far less bulk are natural results of the synthetic-fiber edge construction of TUFF-EDGE. Since TUFF-EDGE folds flatter in trucks and on reels, more hose fits in less space, without cracking in the creases.

Mildew, occurring in folds which have not completely dried, causes fast deterioration. The extra-fast drying and mildew-resistance of the polyester-filament edges of TUFF-EDGE means greater flexibility and longer life for the hose. 50-ft. lengths; 1½" and 2½" diameters; brass expansion-ring couplings.

For complete information, write *Quaker Rubber Division, H. K. Porter Company, Inc., Philadelphia 24, Pa., or Pittsburg, California.*

H. K. PORTER COMPANY, INC.
QUAKER RUBBER DIVISION

"Originators and Sole Manufacturers" of

THE INVINCIBLE NOZZLE

STATIONARY AND PORTABLE TYPES

FOR STANDPIPE USE

A COMPLETE FIRE FIGHTING UNIT

Fig. 2

Operates by handle. Made in four sizes: 300 gpm, 600 gpm, 1100 gpm and 2000 gpm.

Fig. 3

Equipped with Locking Device to set nozzle elevation without an attendant. Comes in sizes from 300 gpm to 10,000 gpm.

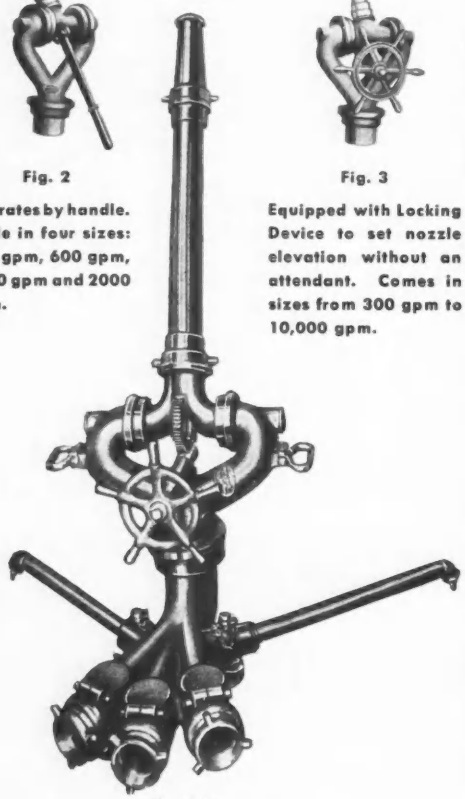


Fig. 149

PORTABLE TYPE — SPECIAL MOUNTING

A portable deluge set with ball bearing joints, easy curves and large waterways that result in solid fire streams always under perfect control. Capacity 1500 gpm. Built-in Shut-Off furnished with each unless specified otherwise.

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F. N. McINTIRE BRASS WORKS

ESTABLISHED 1837

377 Putnam Ave., Cambridge 39, Mass.

Changes in NFPA Staff

Frank Stetka

NFPA members should be interested in the new personnel who joined the Staff recently. The new NFPA Electrical Field Service Engineer is Frank Stetka of Washington, D. C., who succeeds the late Charles L. Smith. Mr. Stetka will have his office at the Chicago headquarters of the International Association of Electrical Inspectors. His new responsibilities include service as secretary of the NFPA Electrical Section, secretary of the Electrical Correlating Committee and Code consultant to the International Association of Electrical Inspectors.

Deuel Richardson

New Public Relations Manager for the Association is Deuel Richardson, who succeeds former PR Manager Robert W. Schuette. Mr. Richardson will work with the NFPA Committee on Public Relations, assist in overall promotion of the well-known Sparky campaign, supervise the preparation of special kits, posters and other materials for fire prevention and clean-up campaigns, provide information to the press, radio and television news services, and direct other public relations activities.

Rexford Wilson

The NFPA Fire Record Department in February added Rexford Wilson, an engineering graduate of the University of Massachusetts. He will work with Fire Record Department Manager Chester I. Babcock in preparing the important studies and reports published in the NFPA *Quarterly*, the monthly *Fire News*, Occupancy Fire Records and other publications developed by that Department.

A complete listing of the men on the NFPA Staff appears on page 6 of this issue.

Handbook on Elementary Fire Fighting

THE British Home Office is circulating a revised edition of its Civil Defence Handbook No. 4 on Elementary Fire Fighting. This is a 40-page booklet designed for home owners which contains helpful information on how fires start, how they may be prevented and methods of escape and rescue from burning buildings.

Elementary Fire Fighting, CD Handbook No. 4, can be obtained from H. M. Stationery Office, York House, Kingsway, London, W.C. 2, for 2 shillings. It is available in the United States at British Information Service, 45 Rockefeller Plaza, New York 20, New York, for 36 cents.

Manpower Utilization

(*Continued from page 17*)

had three such units on duty, ready to roll. This would be 24 men on each shift and would give an immediate fire flow under pump pressure of 3,000 to 4,000 gpm.

This system is even more important where long lines and low water pressures prevail because it provides an automatic pumper relay with maximum flows for which the equipment is designed. Further, the final control of nozzle sizes and pressure is at the fire ground and not at some remote pump or hydrant.

Membership Report

NFPA Welcomes the following chiefs, fire departments and other organizations who recently have joined the Association. Total number of fire department memberships to date is 2,403, with 24,517 fire fighters receiving FIREMEN magazine.

Fire departments planning to renew NFPA memberships in the coming months are urged to poll their fire fighters to see if they want subscriptions to FIREMEN. Such subscriptions cost only $2.00 each per year but must begin when a fire department starts or renews its NFPA membership.

Alabama: Jackson Fire Department, Jackson; Springville Fire Department, Springville.

Alberta: Grande Prairie Fire Department.

Indiana: Lawrence Volunteer Fire Department, Chief Jack Thomas, Lawrence 26; Muncie Fire Department, Chief Orville O. Falls, Muncie.

Iowa: West Branch Fire Department, West Branch.

Kentucky: Highland Heights Volunteer Fire Department, Highland Heights.

New York: Esopus Fire Department, Esopus; Brighton Fire Department, Inc., Rochester.

Northwest Territories: Chief R. J. Engley, Yellowknife Fire Department, Yellowknife.

Oklahoma: Chief E. D. Kirkpatrick, Nichols Hills Fire Department, Oklahoma City 14.

Oregon: Colton Rural Fire Protection District, Colton.

Pennsylvania: Judson A. Knott, Linwood (Special).

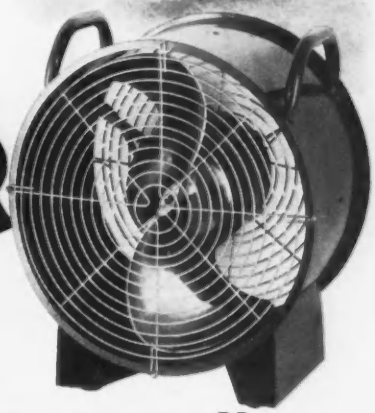
Washington: State Board for Vocational Education, Olympia.

West Virginia: Chief J. E. Lowdermilk, Cheat Lake Volunteer Fire Department, Morgantown.

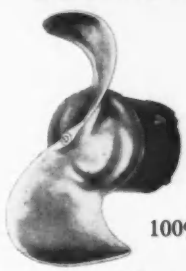
Get smoke out, get air in

with Multi-Purpose

SUPER VAC



CONTROLLED VENTILATION UNITS



NOT JUST A FAN... but a powerful vacuum-action air screw... Super Vac is amazingly simple in operation, made possible by the efficient design of the **powerful propeller** that is the heart of the unit. This patented propeller produces 100% pulling or blowing power over its entire surface.

Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
★ **AC or DC, regular or explosion-proof motors**
★ **Choice of red or white baked enamel finish**
★ **Running board mounts available**

For complete details and specifications on

... contact your fire equipment dealer

... or write manufacturer

SUPER VACUUM

SUPER VACUUM MANUFACTURING CO., Inc
319½ East Seventeenth Ave., Denver 3, Colorado

IMPORTANT FIRE SCHOOL DATES

Arizona: Arizona State Firemen's Association will hold its Convention in Safford, May 7–10. Host will be Chief Irvin Talli of the Safford Fire Department.

California: Fire Training Officers Workshop is scheduled for May 19–23 at Fresno, California. A Fire and Arson Investigation Seminar will be held at the University of California, Berkeley, June 16–20. For information write to Thomas S. Ward, Supervisor of Fire Training, Bureau of Industrial Education, State Department of Education, 721 Capitol Avenue, Sacramento.

Colorado: Colorado State Firemen's Association will hold its annual Tournament and Fire School June 18–21 at La Junta. Write to Arthur J. Becker, Secretary, Colorado State Firemen's Association, 2224 South Stuart Street, Denver 19.

Connecticut: State Department of Education presents Fire Officers Conference, University of Connecticut, Storrs, April 7–9; Fire Marshals Conference, University of Connecticut, April 10–12; Annual Connecticut Fire College, New Haven, June 2–7. Write to Roy W. Adams, Director, Vocational Training Field Service, 490 Capitol Avenue, Hartford 6.

Delaware: State-wide 10th Annual Short Fireman's Course is scheduled for April 12–13, 19–20. Write to Frank M. Forstburg, Supervisor, 511 West 8th Street, Wilmington, Delaware.

Florida: Florida State Fire College will be held March 3–28 and September 8–October 3. Special classes will be held in liquefied petroleum gas, May 19–23; fire pump maintenance, June 9–13, June 16–20; and arson investigation and detection, August 4–8. Write to W. H. Barnett, Superintendent, Florida State Fire College, Box 785, Ocala, Florida.

Illinois: Annual Illinois Fire College will be held June 9–12 at Champaign, Illinois. Write to R. K. Newton, Supervisor of Firemanship Training, 116 D Illini Hall, University of Illinois, Champaign.

Indiana: Indiana State Fireman's Training Program will feature the Basic Fire School, March 24–28, at Purdue University, Lafayette, Indiana. Other courses are Industrial Fire Course, June 4–6; International Arson Investigators Seminar, April 28–May 2; Fire Department Management Conference, December 2–3. Write to Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, W. Lafayette, Indiana.

Iowa: Iowa State College, Ames, will be the location for the Instructors Conference, April 21–24; Iowa State Fire School, June 17–20; Inspectors Short Course, August 5–8. Write to Keith Royer, Supervisor, Firemanship Training, 110 Marston Hall, Iowa State College, Ames, Iowa.

Kentucky: A new course on fire fighting tactics will be added to the present curriculum of the Kentucky Fire School, June 3–5, at the University of Kentucky. Write to J. L. Thompson, Chairman, Fire School Committee, 940 Starks Building, Louisville 2, Kentucky.

Louisiana: State Fire School will be held at the Central Fire Station, Baton Rouge, April 14–17. Write to Chief Robert A. Bogan, Superintendent, Louisiana State Fire College, P.O. Box 96, Baton Rouge, Louisiana.

Maryland: Fire training courses include the 7th Annual Short Course for Fire Inspectors, April 8–11; Pump School Series, May 16–17, 23–24, 30–31, June 6–7, 12–13; 2nd Annual Ladder Short Course, August 5–6; 25th Annual Short Course for Firemen, September 2–5. Write to Robert C. Byrus, Director, Fire Service Extension, Box 85, College Park, Maryland.

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When you are in the market for Fire Apparatus, check and compare all specifications and prices carefully.

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Minnesota: Minnesota State Fire School will be held April 28–May 2 at University of Minnesota. Write to J. O. Christianson, Superintendent of Short Courses, University of Minnesota Institute of Agriculture, Farm Campus, St. Paul 1, Minnesota.

Missouri: Annual Central Missouri Fire Conference will be held at the University of Missouri, July 25–27. Radiation Hazards Instructor's Course is scheduled for March 25–27. For more information write to W. Bush Walden, Administrative Assistant in Charge of Firemanship Training, Building T-11, Room 101, University of Missouri, Columbia, Missouri.

Nebraska: Annual State Fire School is scheduled for May 4–6 at the Fire Training Center, Grand Island, Nebraska. Write to William A. Berens, Chief Fire Engineering Instructor, P.O. Box 347, Harvard, Nebraska.

Nevada: Courses are given on an itinerant basis. Write to H. B. Matherly, Fire Service Instructor, State Capitol, Carson City, Nevada.

New York: Basic, intermediate and advanced courses of the State Fire Training Program and instructor training will be given at the 10th Annual County Fire Instructors Conference of New York during the week of May 18. For more details write to Director Michael H. Prendergast, New York State Division of Safety, 17 Elk Street, Albany 7, New York.

North Carolina: State Fire College will be held May 5–9 at Charlotte, North Carolina. Write to Chief Charles L. Burkett, Fire Department, Salisbury, North Carolina.

Ohio: State Department of Education, Trade and Industrial Division, presents the Regional Northwestern Volunteer Firemen's Association, May 3–4. Write to Byrl R. Shoemaker, 220 South Parsons Street, Room 313, Columbus 12, Ohio. Other classes will be held in Lyndhurst, June 14–15; Coshocton, July 12–13; Akron, September 3–4; and Yorkville, September 13–14. For more information write to Charles J. Getz, Coordinator of Fire Service Training, 216 East Butler Street, Loudonville, Ohio.

Oklahoma: State Fire School is scheduled for April 21–25 and the Fire Hazard Control Short Course for June 16–27 at Oklahoma State University, Stillwater. Write to R. J. Douglas, Head of Fire Protection Department, Oklahoma State University, Stillwater, Oklahoma.

Ontario: New Fire College scheduled to open during summer. Fire officers' training will be presented on an invitational basis.

Oregon: Regional School will be held May 3–4 and 10–11 at Hillsboro. Write to Elmer H. Halstead, State Supervisor, Public Service Training, Division of Vocational Education, 105 State Library Building, Salem, Oregon.

South Carolina: Year-round itinerant instruction is given throughout the State. Write to H. B. Wells, State Fire Department Instructor, 1539 Harrington Street, Newberry, South Carolina.

Texas: Firemen's Training School will be held July 20–25 at Texas A & M College. Firemen Instructors' Conference is scheduled for April 22–24 at Lubbock. Write to Chief Henry D. Smith, Firemen's Training School, College Station, Texas.

Washington: Annual Fire Conference is scheduled for July 23–25 at Chehalis, Washington. For information write to Mrs. Emma Ethier, Secretary, Washington State Firemen's Association, 3206 East 125th Street, Seattle 55, Washington.

West Virginia: State Fire School will be held at Morgantown, July 21–25. Write to Director R. E. Hanna, Jr., School of Mines, West Virginia University, Morgantown.

Wisconsin: Short Course for Firemen will be conducted May 13–16. Write to Chief H. C. Thayer, Trade and Industrial Education, Wisconsin State Board of Vocational and Adult Education, 14 North Carroll Street, Madison 3, Wisconsin.

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Compact, smooth-running, portable Kohler electric plants provide reliable power for floodlights, resuscitators, smoke eradicators, portable iron lungs, power tools. Stand-by models maintain sirens, alarm signals, communications, during power failures.

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Films for Firemen's Training

NUMEROUS requests are sent to the NFPA Executive Office concerning motion picture films available for fire department training, for the training of industrial fire brigades or for general public education.

The editors of FIREMEN recently surveyed a number of motion picture film producers and distributors to obtain an up-to-date listing of useful films on fire protection and fire prevention. Accordingly, the next few issues of the magazine will include a listing of films on these subjects. The NFPA has not reviewed all of these films, and their inclusion in this listing does not imply that the NFPA endorses the recommendations, techniques, evolutions or products used or advertised in the films. Fire departments who want to show these films for training or educational purposes should write to the organizations listed and review the films before showing them to an audience.

The first section of this listing, which will be continued in the April issue of FIREMEN magazine, will cover films on fire department operations. Other listings will cover films on fire prevention, general public education, forest, grass and brush fire fighting, industrial fire protection, aircraft fire control and Civil Defense.

ARTIFICIAL RESPIRATION: THE BACK-PRESSURE ARM-LIFT METHOD. 16mm, black and white, sound. 7 minutes. Demonstrates the back-pressure arm-lift method of artificial respiration. Shows in some detail the positions for victim and operator, emphasizing hand placement, body swing and weight change. Mentions several possible errors and how to avoid them. *Indiana University, Audio-Visual Center, Bloomington, Ind.* **Rental $1.75.**

Monroe FOLDING BANQUET TABLES

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Write today for new catalog showing 58 models and sizes of Monroe Folding Tables.

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MONROE TRUCKS for Folding Tables and Chairs

Transport and store your folding tables and chairs the easy, modern way on MONROE Trucks. Construction of Transport-Storage Trucks permits maneuverability in limited space. See Catalog.

MONROE Truck No. TSS

Complete Line of Folding Chairs

THE MONROE CO. 277 CHURCH ST. **COLFAX, IOWA**

BEFORE THEY HAPPEN. 16mm, black and white or color, sound. 15 minutes. (Released 1954.) Shows in documentary fashion the large amount of routine inspection work that lies behind the safety of a large city. *Bureau of Communication Research, Inc., 13 East 37th St., New York 16, N. Y.* **Free.** *ROA's Films, 1696 North Astor St., Milwaukee 2, Wis.* **Rental $5.** *South-Eastern Underwriters' Association, P.O. Box 5048, Atlanta 2, Ga.* **Free.**

BREATH OF LIFE. 16mm, color, sound. 8 minutes. Shows use of Scott AIR-PAK gas masks in fire fighting. *Scott Aviation Corp., Lancaster, N. Y.* **Free.**

BREATHING APPARATUS. 16mm, black and white, sound. 33 minutes. (Released 1952.) Stresses importance of breathing apparatus to the fire service. Shows operation and proper method of wearing different types of masks. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase only $74.50.** *University of Illinois, Visual Aids Service Extension, Champaign, Ill.* **Rental.**

CARE AND MAINTENANCE OF FIRE HOSE. 16mm, black and white, sound. 21 minutes. Introduces the new man to types of hose, its care and proper use of male and female couplings. *Bureau of Communication Research, Inc., 13 East 37th St., New York 16, N. Y.* **Rental: 1 day $7.50; 2 days $10; 1 week $15; purchase $100.**

CITY FIRE FIGHTERS. 16mm, black and white or color, sound. 11 minutes. (Released 1947.) Importance of organized fire fighting, showing fireman's equipment and how he goes into action at the sound of an alarm. *Coronet Films, Sales Dept., Coronet Bldg., Chicago 1, Ill.* **Rental $2 (b/w), $4 (color); purchase $45 (b/w), $90 (color).** *Indiana University, Audio-Visual Center, Bloomington, Ind.* **Rental $2 (b/w), $3.25 (color).** *ROA's Films, 1696 North Astor St., Milwaukee 2, Wis.* **Rental $4.** *University of Missouri, Visual Education Department, 23 Jesse Hall, Columbia, Mo.* **Rental $1 for 2 days.** (Available in Missouri only.)

COMPANY FIRE PREVENTION. 16mm, black and white, sound. 22 minutes. Acquaints personnel with the procedures to be followed in a house-to-house fire prevention campaign. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $52.70.**

COMPANY RESPONSE. 16mm, black and white, sound. 13 minutes. Tells about the pre-planning necessary by company officers and crew members before fire strikes. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $42.50.**

EMULSION EXTINGUISHMENT OF OIL FIRES WITH WATER SPRAYS. 16mm, color, sound. 20 minutes. (Released 1949.) Explains and shows water spray (fog) extinguishment of oil fires with its operations and applications to heavy, medium, and light oils. *Grinnell Company, Inc., Att. J. E. Bowering, 260 West Exchange St., Providence 1, R. I.* **Free.**

FIGHT THAT FIRE. 16mm, black and white, sound. 10 minutes. Explains the principles of prevention and control of fire and shows methods of using equipment for fire fighting. *Indiana University, Audio-Visual Center, Bloomington, Ind.* **Rental $1.50.**

FIRE AND POLICE SERVICE. 16mm, black and white, sound. 11 minutes. (Released 1947.) Firemen learning to use many tools to be experts in first aid and the theory of fire fighting. *Ideal Pictures, Inc., 58 E. S. Water St., Chicago, Ill.* **Rental $2; purchase $55.**

FIRE ENGINES! 16mm, black and white or color, sound. 11 minutes. Made for use in primary school grades, film explains main functions of the pump, the truck and the salvage wagon showing them at drill and at a fire. *Tompkins Films, Inc., 960½*

Larrabee St., Los Angeles 46, Calif. **Rental $3.50 (b/w), $5 (color); purchase $50 (b/w), $100 (color).** *ROA's Films, 1696 North Astor St., Milwaukee 2, Wis.* **Rental $4.** *Indiana University, Audio-Visual Center, Bloomington, Ind.* **Rental $3.25.**

FIRE RESCUE COMPANIES. 16mm, black and white or color, sound. 20 minutes. (Released 1954.) Illustrates non-fire rescue operations performed by the rescue wagon. *Tompkins Films, Inc., 960½ Larrabee St., Los Angeles 46, Calif.* **Rental $7.50 (b/w), $15 (color); purchase $100 (b/w), $200 (color).** *Audio-Visual Extension Service, 115–121 TSMa, University of Minnesota, Minneapolis 14, Minn.* **Rental $6.**

FIREMAN! 16mm, black and white, color, sound. 11 minutes. (Released 1949.) Day of a typical fireman including his routine work, his study, his drills, and his participation in a fire. Study guide provided with film. *Tompkins Films, Inc., 960½ Larrabee St., Los Angeles 46, Calif.* **Rental $3.50 (b/w), $5 (color); purchase $50 (b/w), $100 (color).** *ROA's Films, 1696 North Astor St., Milwaukee 2, Wis.* **Rental $1.75.**

FIRE POWER AGAINST FIRE. 16mm, color, silent. 10 minutes. Ansul dry chemical fire truck employs proper fire fighting techniques against large scale fires. *Ansul Chemical Company, Marinette, Wis.* **Free.**

FIRE PROTECTION THROUGH RESEARCH. 16mm, color, sound. 35 minutes. (Released 1957.) Explains and demonstrates basic mechanics of fire and extinguishment with water spray (fog), foam, carbon dioxide and dry chemical. *Grinnell Company, Inc., Att. J. E. Bowering, 260 West Exchange St., Providence 1, R. I.* **Free.**

FOG TECHNIQUES. 16mm, color, silent. 20 minutes. Fire training film showing how water fog may be used not only to extinguish certain kinds of fires but to protect firemen when approaching fires, valves in dangerous areas, etc. *C. C. Haier, Standard Oil Company, Midland Building, Celeveland 15, Ohio.* **Free.**

GIVE US A BRAKE. 16mm, color, sound. 12 minutes. (Released 1950.) A public educational film depicting problems encountered by fire departments because unthinking public fails to yield right-of-way to fire apparatus, runs over hose, crowds at fires, blocks hydrants, etc. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $66.20.**

HIGH CAPACITY FOGFOAM. 16mm, black and white, sound. 32 minutes. Shows high capacity fogfoam nozzles used to extinguish highly volatile fires in large areas containing 2,500 gallons of high octane gas, 25 to 75 planes in the area. *Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass.* **Free.**

HOSE. 16mm, black and white, sound. 25 minutes. Demonstrates the techniques in the use and handling of hose. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $69.50.**

HOSE APPLIANCES. 16mm, black and white, sound. 25 minutes. Training film that explains the use of various hose appliances and the care of same as established by the Los Angeles Fire Department. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $69.50.**

HOSE LAYS WITH TRIPLE COMBINATION COMPANIES. 16mm, black and white, sound. 32 minutes. For training new men. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $69.50.**

HOSE LAYS WITH TWO-PIECE COMPANIES. 16mm, black and white, sound. 27 minutes. For training new men. *Cinesound Company, 1037 North LaBrea Ave., Hollywood 38, Calif.* **Purchase $69.50.**

(Continued next month)

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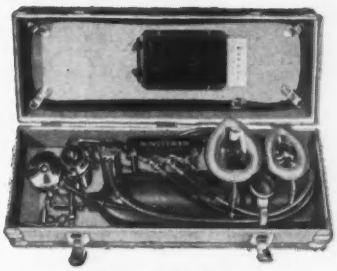
THE

STEPHENSON "MINUTEMAN" RESUSCITATOR



(Weighs only 30 pounds)

This lightweight, lifesaving device is especially designed for FAST application in all respiratory emergencies.
The newest rookie can start it breathing for the victim in seconds.
Its size and weight make it particularly desirable for use in:

Crash Trucks — **Emergency Cars**
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Now **Fire Exits Can Be Locked . . . Safely, Legally with EXIT LOCK!**

(For use with panic bars)

● EXIT LOCK safeguards lives and property . . . allows fire doors and emergency exits to be locked legally, yet permits instant exit when fire strikes! EXIT LOCKS may be unlocked by authorized personnel for deliveries, loading, etc. Alarm bell rings when *unauthorized* person opens door. Fits single or double door exits with panic devices.

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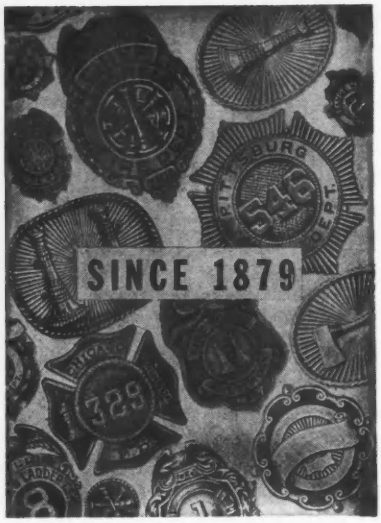

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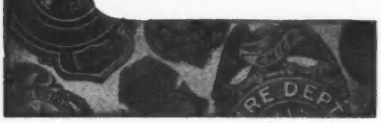

THE C. G. BRAXMAR CO., INC.
DEPT. P
216 East 45th Street
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Spring Clean-Up Kits

THE 1958 Spring Clean-Up kits for use by fire departments are now available. They will be mailed to all NFPA member fire departments, to all members of the International Association of Fire Chiefs and to county agents of the United States Department of Agriculture Extension Service. Single copies are also available free of charge upon request to the NFPA Public Relations Department.

This year's kit will contain specially prepared releases for newspapers, radio and television stations spot announcements and the new Spring Clean-Up poster. In addition, there is a home inspection blank and a coloring poster for youngsters. A selection of newspaper mats has been added to this year's kit.

Also available is a new Sparky film for use in television broadcasts or motion picture programs. Black and white prints of this one-minute animated film on clean-up activities may be obtained in either 16mm or 35mm. Prices are $5.00 per 16mm print and $9.75 per 35mm print. For an additional charge of $2.00 per print ordered a 10-word sponsor message will be included.

Write to NFPA Publications Department for new films.

Chief Trudell Retires

CHIEF Joseph L. Trudell has retired from the Bay City, Michigan, Fire Department after 50 years of service. He has been Chief of the Department for the past 15 years and has retained membership in NFPA. He is succeeded by Chief Jacob H. Hohmann, who has been in the fire service for 40 years.

Any Drier Fires?

THE number of fires involving home clothes driers, as shown in Fire Department Reports, indicates the serious problem associated with these appliances.

Fire departments who have had experience with home drier fires are urged to send their fire reports to FIREMEN magazine. Accounts of such fires should be submitted on Fire Report Forms available from the NFPA Fire Record Department. Significant reports will be published in FIREMEN magazine.

"CALL-VOLUNTEER-RETIRED" FIREMEN...

your spare time means money!

NOW, YOU CAN OWN your own profitable business in your spare time. A coin-metered unattended Westinghouse Laundromat® equipped laundry store can add $4000-8000 to your annual income... and build for you and your family a solid depression-proof business that actually runs itself.

briefly, here's what it is:

1. A coin-operated laundry store requires no attendants... all equipment is coin-metered and operated by customers as easily as soft drink vending machines. And because she does-it-herself, the housewife saves almost 50% on her weekly laundry bill.

2. A coin-operated laundry store is often open 24 hours a day... 7 days a week... providing a necessary modern laundry convenience for working people. Profits are realized during night and weekend hours when regular laundry stores are closed.

here's what it does for you:

1. Because it takes but a few hours of management time a week, (your wife can help), it does not interfere with your regular profession.

2. Depreciation of equipment for tax purposes is rapid, and within a relatively short period, you own a going depression-proof business that actually runs itself.

NO PREVIOUS experience is necessary. We offer advice, store planning, training and advertising... and we will finance up to 80% of the necessary equipment. We'd like to show you some coin-metered laundry stores in your area and give you full particulars on their operation... without obligation, of course. Just fill out the quick-action coupon below.

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Chicago, Ill.

Sounds good! Have your representative contact me.

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Farm Fire Fighting

SALT INSTITUTE, 33 North LaSalle Street, Chicago 2, Illinois, calls attention to the use of salt for easing farm fire fighting in cold weather. It suggests dissolving eight quarts of salt in about one-third of a barrel of water. The barrel is then placed in the pond or water hole, covered to prevent rain or snow from diluting the salt, then marked so that the barrel can be located in deep snow.

If fire occurs, the wooden barrel can be broken easily, providing a source of suction from the water supply.

The Institute also recommends that a mixture of four pounds per gallon of salt will keep water in fire barrels and buckets from freezing in farm buildings.

New Index

RECENTLY published was a new 64-page paper-bound "Index to NFPA Publications." This new 6- by 9-in. book provides a useful index of 2,750 subjects and 15,000 references to material published in NFPA periodicals from January 1, 1945 to May 1, 1957. Topics are listed alphabetically and cover all Advance Reports, *Fire News*, Occupancy Fire Records, proceedings of NFPA Annual Meetings and the Fire Marshals' Section, and the NFPA *Quarterly*.

This book should serve as a useful addition to fire station libraries, particularly for men taking promotional examinations. Copies are available at $2.00 each while the supply lasts. To order, simply write to the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

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1953

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Red & White

In excellent condition — equipped with 6-volt two-way radio — two extra tires and wheels.

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Chief James W. Randall, Sr.
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Yes, you must protect your own life in order to successfully save another . . . and the surest way of doing that is to don a Scott Air-Pak before you enter a smoke filled area. Then you will breathe pure, fresh, cool air no matter how thick or poisonous the smoke.

The New SCOTTORAMIC Mask gives unlimited vision in all directions, making a rescue job with a Scott Air-Pak safer and surer.

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Missing pieces or missing features both affect the appearance and durability of Badges.

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All the advantages of superior durability and added beauty of the EXCLUSIVE NIELSEN-RIONDA Solid flat back.

Plus 10 year guaranteed silver fused coat and cap attachments, center emblems and numbers.

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Write today for our beautifully illustrated Brochure A . . . showing hundreds of original ideas for reasonably priced solid bronze plaques, honor rolls, memorials, awards, testimonials, commemorative tablets. For trophy, medal, cup ideas, write for Brochure B. Dept. 67.

INTERNATIONAL BRONZE TABLET CO., INC.
150 West 22nd St., New York 11, N. Y.

British Fire Protection Year Book

A COMPREHENSIVE directory applying to the British Commonwealth and Empire is provided in the 1958 edition of the Fire Protection Year Book which is published by Benn Brothers Limited, Bouverie House, Fleet Street, London E.C. 4, England. The current edition is over 500 pages clothbound, and may be purchased from the publishers at the above address for 20 shillings postpaid, or it may be obtained together with 12 monthly issues of *Fire Protection Review*. (Write for home and overseas rate.)

The Year Book lists public and industrial fire brigades, government departments and associations with functions relating to fire protection and fire prevention matters. It has sections dealing with the laws relating to fire brigades in Great Britain and also summarizes the application of laws there relating to fire protection in factories and dangerous trades, in buildings and with respect to dangerous substances, and other interesting information.

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MIDWESTERN
STRIPED SAFETY COAT

- Brilliant Yellow Rubber Stripes!
- Maximum Visibility!
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- Exclusive Safety Features!

See your Midwestern dealer or WRITE for Free Catalog and fabric samples.

MIDWESTERN SAFETY MFG. CO.
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Arson Investigators' Seminar

THE 14th annual International Arson Investigators' Seminar will be held at the Memorial Union Building, Purdue University, Lafayette, Indiana, April 28–May 2. Official members of fire departments, law enforcement agencies, industrial protection departments, local, state and national governmental agencies, insurance and underwriting organizations, defense services, fire prevention representatives and persons actively engaged in arson control and prevention are invited to attend.

Sponsored by the Public Safety Institute of Purdue University, with the cooperation of the International Association of Arson Investigators and many other national and state agencies, the Seminar will feature training for the new enrollee, advanced investigative techniques, review of latest laboratory aids and specific training that will lead to more effective detection, apprehension, prosecution and conviction of the arsonist.

For additional information concerning the Seminar write to Professor Shelby Gallien, Seminar Director, Public Safety Institute, Purdue University, Lafayette, Indiana.

Maryland Fire Schools

THE Fire Service Extension of the University of Maryland plans special fire officer training sessions for the early months of 1958. Classes were started in January but will also be held on each Monday of March, April and May. Training sessions will take place at College Park, LaVale, Mt. Airy, Denton, Belair and Waldorf.

For detailed information write to Director Robert C. Byrus, Fire Service Extension, University of Maryland, College Park, Maryland.

Two-Time Losers

The January issue of the Ontario Fire Marshal's *Quarterly Bulletin* quotes this Reuters news item. An article in *Firefighter*, official journal of Britain's Fire Brigades Union, says the union's legal department was recently engaged on behalf of a member whose fire engine was involved in a crash with a black limousine.

"The occupants of the car all gave evidence at the hearing," said the story. "All five were senior police officers. We lost the case.

"One of our brothers in Kent got mixed up with a private car.

"When the doors opened, six nuns got out. We lost that case, too."

Two new Mack 750-GPM, cab-forward, triple combination pumpers recently delivered to the Providence, R. I., Fire Department. Specifications include three-way deluge gun; 300-gallon booster tank; and a 35′ three-piece aluminum extension ladder. Note sharp turning angle of the advanced Mack steering system.

Providence modernizes with MACKS

In operation only a few months, these new Mack cab-forward units meet or exceed every expectation of the Providence Fire Department, according to Chief Lewis Marshall. For stand-out features he cites the easy maneuvering, quick power response and smooth handling of the Macks—*musts* along the sharp, steep hills and narrow, congested streets of Providence.

Whatever your needs, you'll receive the same satisfaction as Providence when you operate custom-built Mack fire apparatus—standard or cab-forward . . . with conventional or automatic transmissions . . . with the gear ratios and built-in extras that most exactly match your terrain and climate. Mack Fire Apparatus, Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

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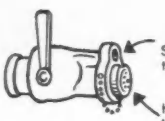
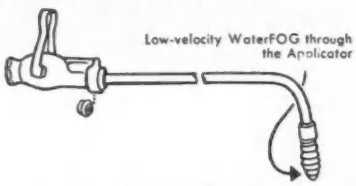
COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65′ to 100′ . . . COMBINATION LADDER TRUCKS

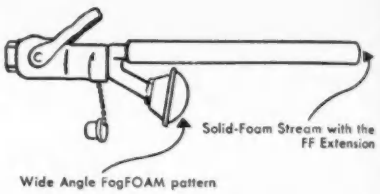
Rockwood SG-60 WaterFOG Nozzle is five nozzles in one

The lightweight Rockwood SG-60 WaterFOG Nozzle *eliminates "special" or single-purpose nozzles!* It actually does the work of five nozzles to put out fires faster, safer and more economically.

Here's what we mean . . .

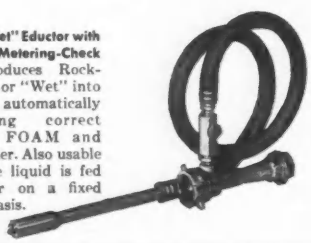


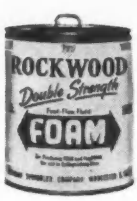




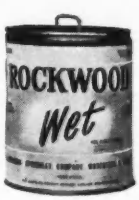
Here's what you need to put out ordinary combustibles and flammable liquids . . .

FOAM and "Wet" Eductor with the new FW Metering-Check Valve. Introduces Rockwood FOAM or "Wet" into hose lines, automatically proportioning correct amount of FOAM and "Wet" to water. Also usable wherever one liquid is fed into another on a fixed percentage basis.





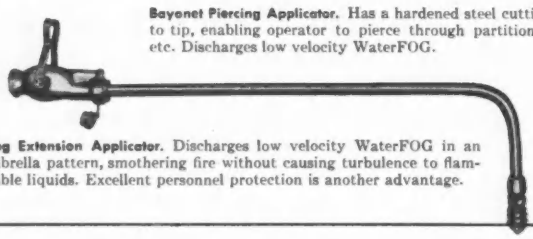
Rockwood Double Strength FOAM. Puts out fires in flammable liquids, and in ordinary combustibles, quicker, at lower cost. Three parts FOAM and 97 parts water create a heat-resistant blanket.



Rockwood WET. One part WET mixed with 99 parts water increases water's penetration and extinguishing action. Gives quickest results against deep seated fires. Saves time, water, manpower.

FF Extension Unit. Shown with Type SG-60 Nozzle. Discharges Rockwood FOAM in a solid stream or as FogFOAM. Wide angle makes it possible to cover large areas at one time.

Bayonet Piercing Applicator. Has a hardened steel cutting tool attached to tip, enabling operator to pierce through partitions, into interiors, etc. Discharges low velocity WaterFOG.



Long Extension Applicator. Discharges low velocity WaterFOG in an umbrella pattern, smothering fire without causing turbulence to flammable liquids. Excellent personnel protection is another advantage.

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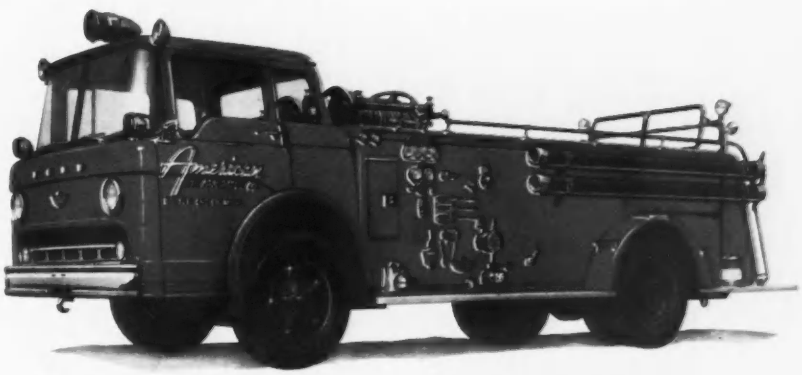

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this month's EQUIPMENT NEWS

News About GE

The General Electric Communications Products Department, Electronics Park, Syracuse, New York has announced several items of interest to the fire service. One is that 156 mobile radio units have been furnished for San Diego's (California) modernized municipal communication system. Forty of the units have been assigned to the fire department and 26 to other emergency vehicles. Another news item is that GE has developed new transistor-powered mobile radio units, (left) with 25 or 50 watt radios available for the fire service. They may be used with either positive or negative ground 12-volt d.c. systems. GE has also published a 38-page brochure on its two-way mobile radio equipment. The booklet may be obtained free by writing to the Communication Products Department at the above address. Ask for Booklet ECR-497.

Power Megaphone

Wheeler Protective Apparel, Inc., 224 W. Huron Street, Chicago 10, Illinois, is now distributing a new dry cell transistor megaphone, intended primarily as a communication aid in fire fighting. The power megaphone operates on pen cell dry batteries, weighs about four pounds, and is said to have a range up to a quarter of a mile. It is all aluminum construction, and features optional carrying case and shoulder strap. Write to manufacturer at above address for detailed information and prices.

New Appointment

George N. Malcolm has been appointed general manager of Ward LaFrance Corporation, Elmira, New York, a subsidiary of the Glen Alden Corporation. He succeeds F. N. Tracy, who resigned in February. For the past two years Malcolm worked with Ward LaFrance on new product sales development and diversification. Prior to his new appointment, Mr. Malcolm was with the Glen Alden Corporation for five years.

Fire Apparatus Catalog

Howe Fire Apparatus Company, 1402 West 22nd Street, Anderson, Indiana, has published a well-illustrated catalog describing its equipment. The 8½- by 11-in., 108-page book not only shows pictures of many items, but also includes pertinent information such as hydraulic data, design specifications and suggested uses of the equipment. Write to the manufacturer at the above address for a free copy. Ask for "Fire Equipment Catalog C."

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itches for spray. Stur-
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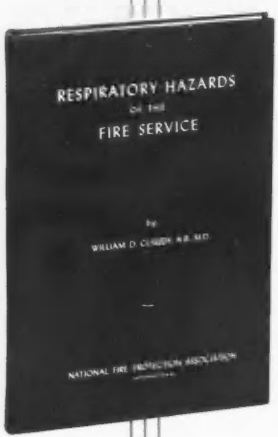

"RESPIRATORY HAZARDS of the FIRE SERVICE"

A new book by Dr. William D. Claudy, member, Board of Police and Fire Surgeons, Washington, D. C., and surgeon of the Falls Church Volunteer Fire Department and the Arlington County Fire Department in Virginia.

Dr. Claudy has been a frequent contributor to NFPA FIREMEN magazine, and many of his excellent articles on first aid, artificial respiration, treatment of burns and handling contagious diseases have been reprinted in response to requests from readers. In this new book Dr. Claudy describes in fireman's language the respiratory hazards that confront fire fighters. About one-third of the book is devoted to the construction, use and maintenance of canister and self-contained masks. Other sections deal with the all-important anatomic and physiologic problems due to smoke inhalation and lack of oxygen, toxic gases, fire fighting procedures and numerous other facts that are extremely important to a fire fighter's well-being.

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